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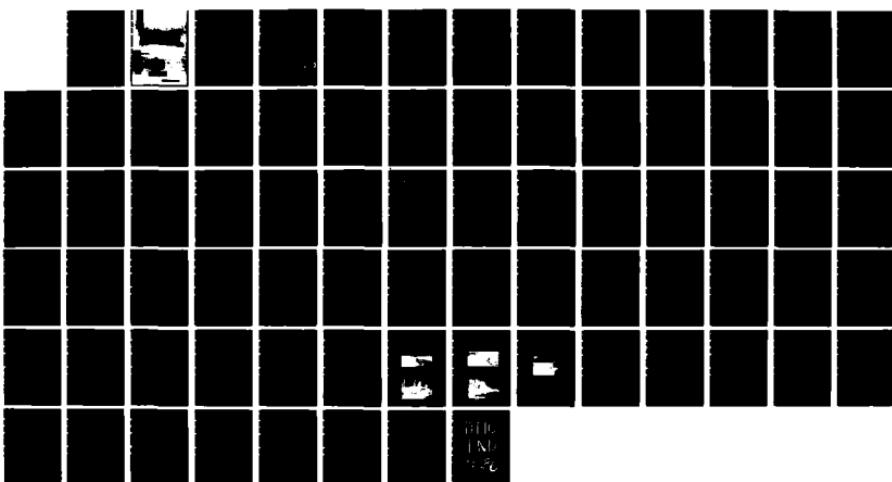
THE CULTURAL RESOURCES INVESTIGATION OF THE WILD RICE
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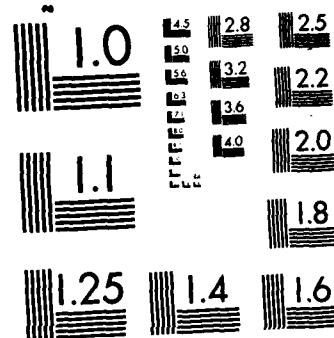
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PRE-CULTURAL RESOURCES INVESTIGATION OF THE
MISSOURI RIVER - SOUTH BRANCH AND FELTON DITCH
FLOOD CONTROL PROJECT AREA, CLAY AND IRVING
COUNTIES, MINNESOTA (DACS 37-30-0-006)

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THE CULTURAL RESOURCES INVESTIGATION OF THE
WILD RICE RIVER - SOUTH BRANCH AND FELTON DITCH
FLOOD CONTROL PROJECT AREA, CLAY AND NORMAN
COUNTIES, MINNESOTA (DACP 37-80-C-0003)

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ABSTRACT

This report presents the results of a Phase I cultural resource investigation along the Wild Rice River - South Branch and Felton Ditch in Norman and Clay Counties, Minnesota. The survey was done under contract with the United States Army Corps of Engineers, St. Paul District, St. Paul, Minnesota (contract number DACW37-80-C-0003). The goal was to locate, identify, and evaluate historical and prehistoric cultural resources within the project area and to make specific recommendations as to the potential need for further testing.

A thorough and comprehensive literature search and records check was conducted at the Office of the State Archaeologist, State Historic Preservation Office, Moorhead State University, Norman County Historical Society, Clay County Historical Society, Norman and Clay County Soil Conservation Service as well as the Mankato State University Library. Additionally, several interviews were conducted with professional archaeologists knowledgeable of the project, county historical society and Soil Conservation Service personnel, local collectors and several land-owners.

Ground surface reconnaissance was conducted at a 15 meter interval on the 100' corridor of the 65.5 linear miles included in the project. Also, 104 subsurface shovel tests were placed in areas 1) where the ground cover did not allow for adequate visual examination; 2) which had a high potential for site location; and 3) as a verification of the surface reconnaissance results.

No cultural material was recovered as a result of either the ground surface reconnaissance or the shovel testing. Based upon these results, no significant cultural resource will be altered, damaged, or destroyed as a result of proposed construction activities.

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INTRODUCTION

A cultural resource investigation was conducted of the Wild Rice River - South Branch and Felton Ditch (DACW37-80-C-0003) for the Department of the Army, St. Paul District, Corps of Engineers. The purpose of the survey was to locate, identify and evaluate any cultural resources found to be present within the survey area. These included historical, prehistoric, as well as architectural historical cultural resources.

The scope of this survey included a thorough and comprehensive literature search and records check of cultural resources known to exist in or near the survey area; a ground surface reconnaissance of the entire project area; and subsurface shovel testing where the ground surface visibility did not allow for adequate visual examination.

The U.S.G.S. Quadrangle maps which cover the project area are Felton 1966 NW, Borup 1966, Ulen NW 1965, Ulen SW 1966, Felton SW 1966, and Felton 1966. All of these quadrangle maps are 7.5 minute series. The field examination and part of the literature search was conducted from October 15 to November 9, 1979. The final portion of the literature search was conducted on November 12, 13, and 14, 1979. The literature search and field investigation were carried out under the direct supervision of Kathleen A. Roetzel, Principal Investigator, with the assistance of Michael A. Eigen, historical archaeologist. The field crew consisted of Patricia Emerson, a graduate student at Mankato State University with several seasons of field and laboratory experience and Richard Snider, a senior at Mankato State University majoring in Anthropology with several seasons of field and laboratory experience. Both Ms. Emerson and Mr. Snider have had previous experience working on survey projects of a similar nature in Minnesota.

All materials recovered during the course of this survey will be stored at the Mankato State University Museum of Anthropology. They will be identified as property of the Corps of Engineers and will be available to qualified professional archaeologists upon request.

SURVEY AREA

The survey area was along the South Branch of the Wild Rice River and Felton Ditch in southern Norman and northern Clay Counties in the Red River Valley (see Figure 1). The Red River of the North forms the western boundary of the two counties. Norman County is adjacent to and north of Clay County. Both counties are bounded on the east by Mahamonen and Becker Counties; and Norman is bounded on the north by Polk County while Clay is bounded on the south by Wilkin County. The construction activities would impact 16 miles of the South Branch and 20 miles of Felton Ditch for a total of 72 linear miles to be surveyed. The Scope of Work did not involve surveying the entire linear corridor of 72 miles because in some areas only one side will be impacted. Thus, a total of approximately 65.5 miles was surveyed.

Specific features of this project include debris removal, enlargement of both channels, construction of 146 side ditch inlets, levee construction, and the installation of a drop structure (see Figure 2 and 3).

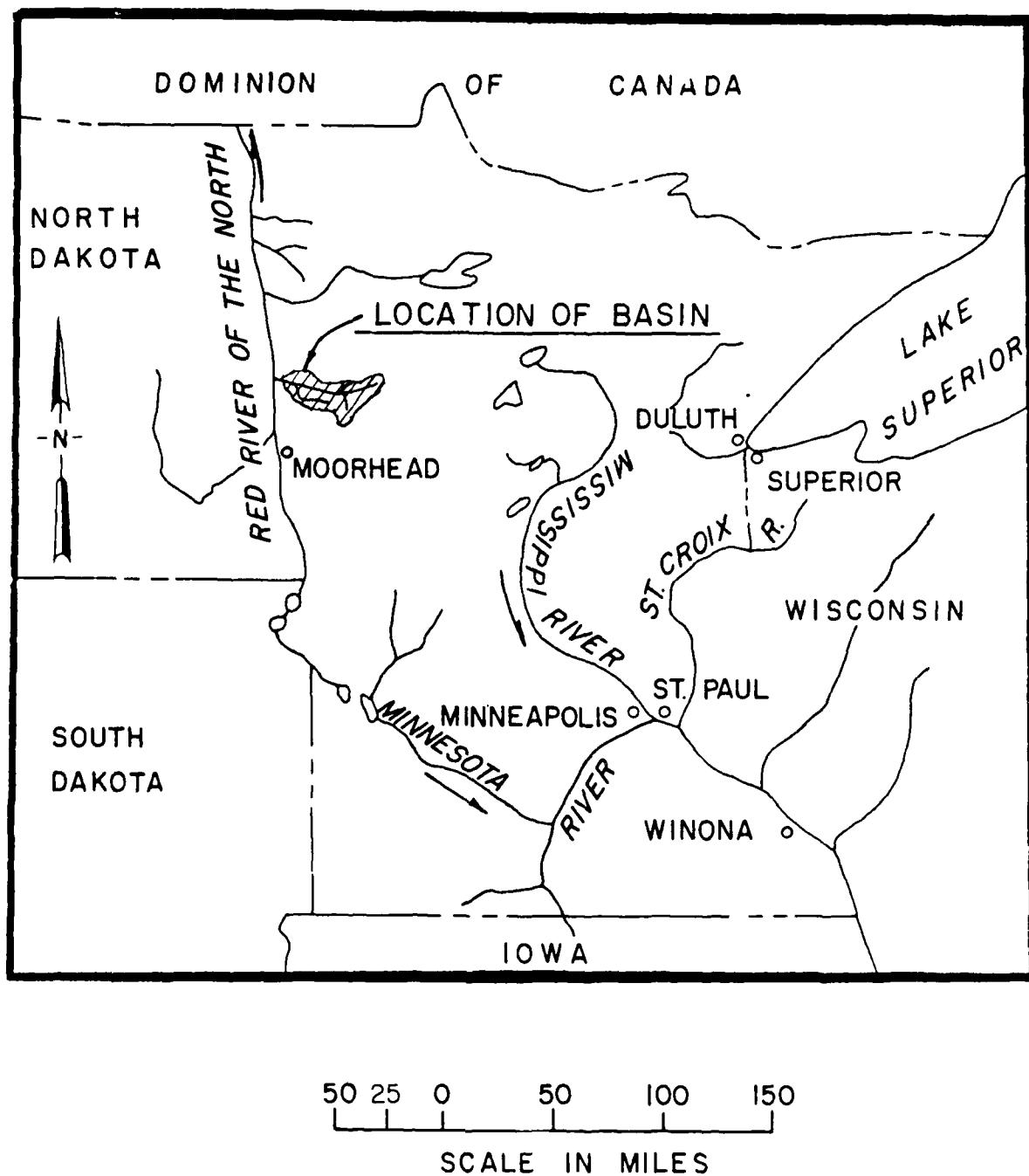
The debris removal or snagging will entail clearing of dead and/or fallen trees which potentially obstruct the flow of water. According to Mr. Lawrence Woodbury of Houston Engineering, Inc. of Fargo, North Dakota, the snagging operations will involve no subsurface disturbance, but will necessitate the use of heavy machinery. The snagging will be done along the lower 0.95 miles of Felton Ditch and between mile 15.55 and mile 16.0 of the upper South Branch. This will also include removal of the remnants of Bridge No. 20 at mile 16.1 of the South Branch.

Channel enlargement will be done from either one or both sides between mile 0.95 and mile 17.2 of Felton Ditch and mile 1.21 and mile 15.55 of the South Branch. In looking at the maps provided by Houston's, it appears that the linear corridor width ranges from 85' to 130' with an average of approximately 107'. A total of 146 side ditch inlets will be constructed in the areas of channel enlargement.

Levee construction will be done along both sides of Felton Ditch between mile 17.2 and mile 20.0. The levee construction will encompass a maximum of 800' from the center of the ditch on both sides. The fill for levee construction will be taken from downstream channel excavation of Felton Ditch.

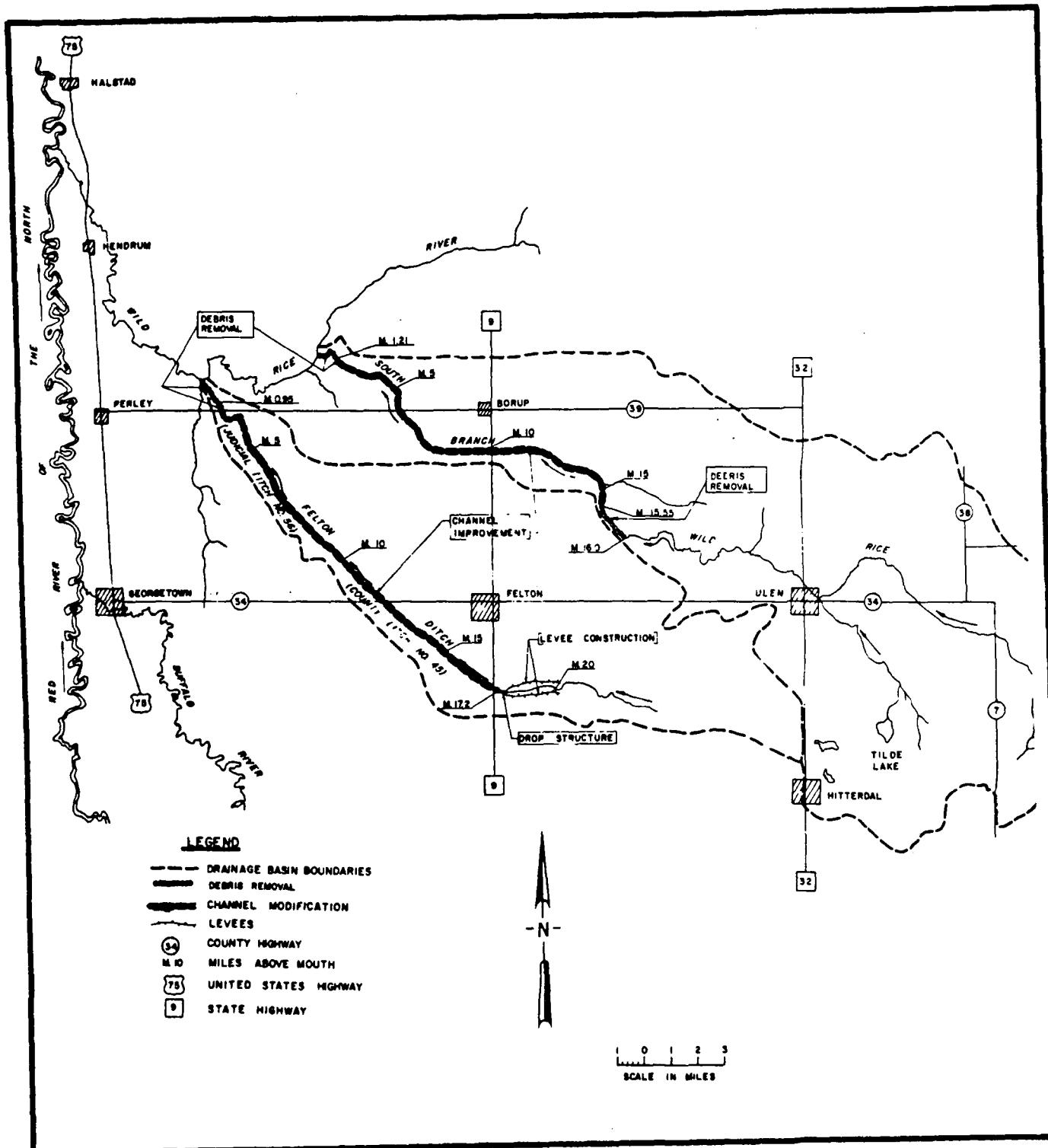
A drop structure of concrete will be installed at the juncture of the levees and channel enlargement in order to reduce erosion in these areas.

Figure 1: General Location of the Project Area



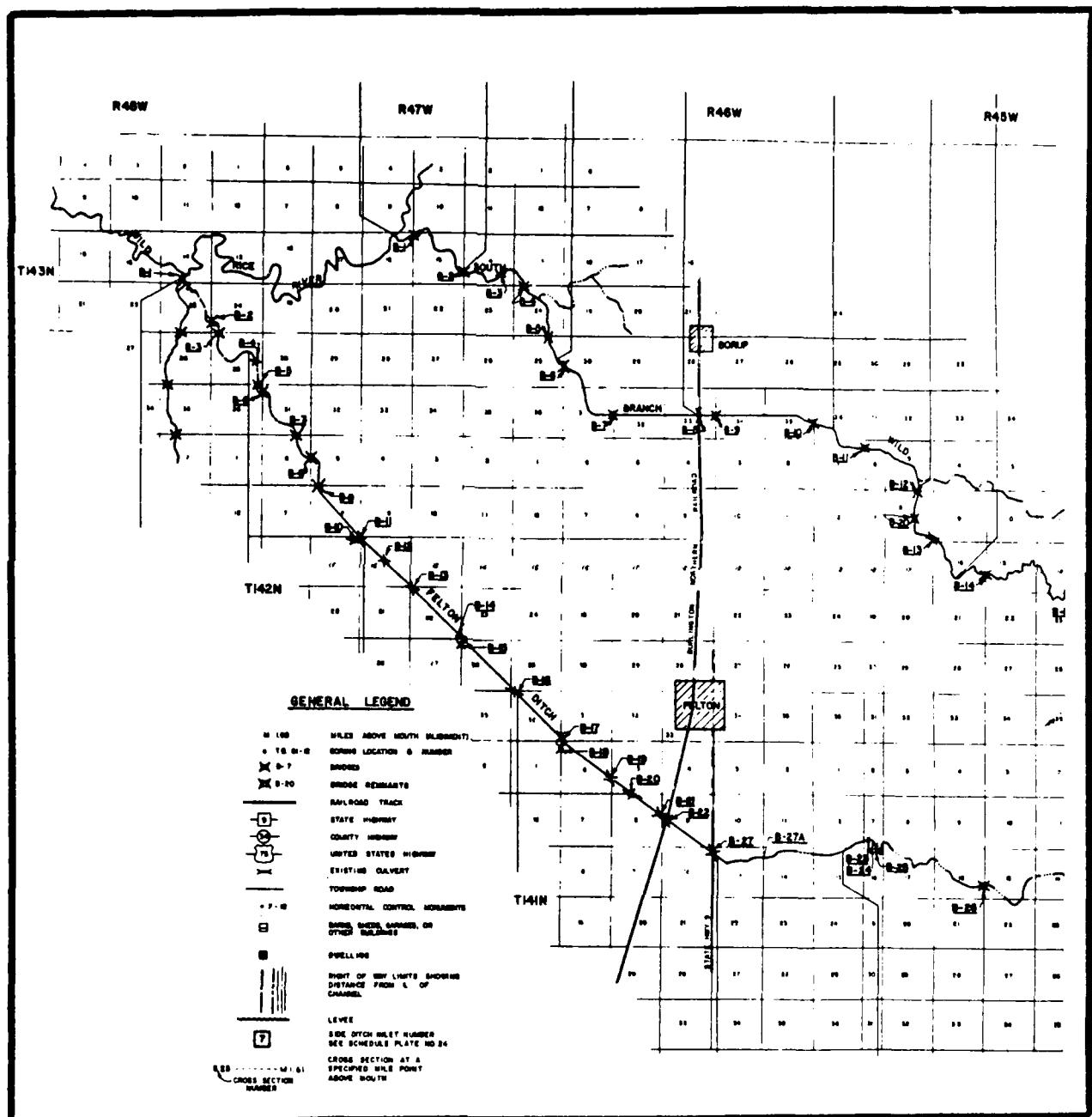
From U. S. Army Corps of Engineers Maps

Figure 2: Proposed Construction Activities on the
South Branch and Felton Ditch



From U. S. Army Corps of Engineers Maps

Figure 3: General Plan and Index of the Project Area



From U. S. Army Corps of Engineers Maps

ENVIRONMENTAL SETTING

Norman and Clay Counties lie within the Red River Valley. The physical geography of the Valley was a product of events in its glacial history. Glaciers advancing southward were responsible for creating a flat uniform land contour; wearing down high points and filling in depressions. The glacial retreat resulted in Lake Agassiz, which carved large portions of Canada and northwestern Minnesota and eastern North Dakota (see Figure 4). When the lake drained northward into Hudson Bay, there remained the large lakes of Manitoba and a broad river, the Red River of the North, running through the lowest section of the original lake bed (Upham 1909:15-31, Murray 1967:3-7).

The Red River plain appears to be part of the prairie; but though the people experience the same winter blizzards, the short, hot summers, and the vast loveliness of prairie skies; the topography, soil, and climatic conditions set it apart from the true northern prairie. Thus, the Red River Valley is a transition area between the vast prairie to the west and the forested lake regions to the east (Murray 1967:3).

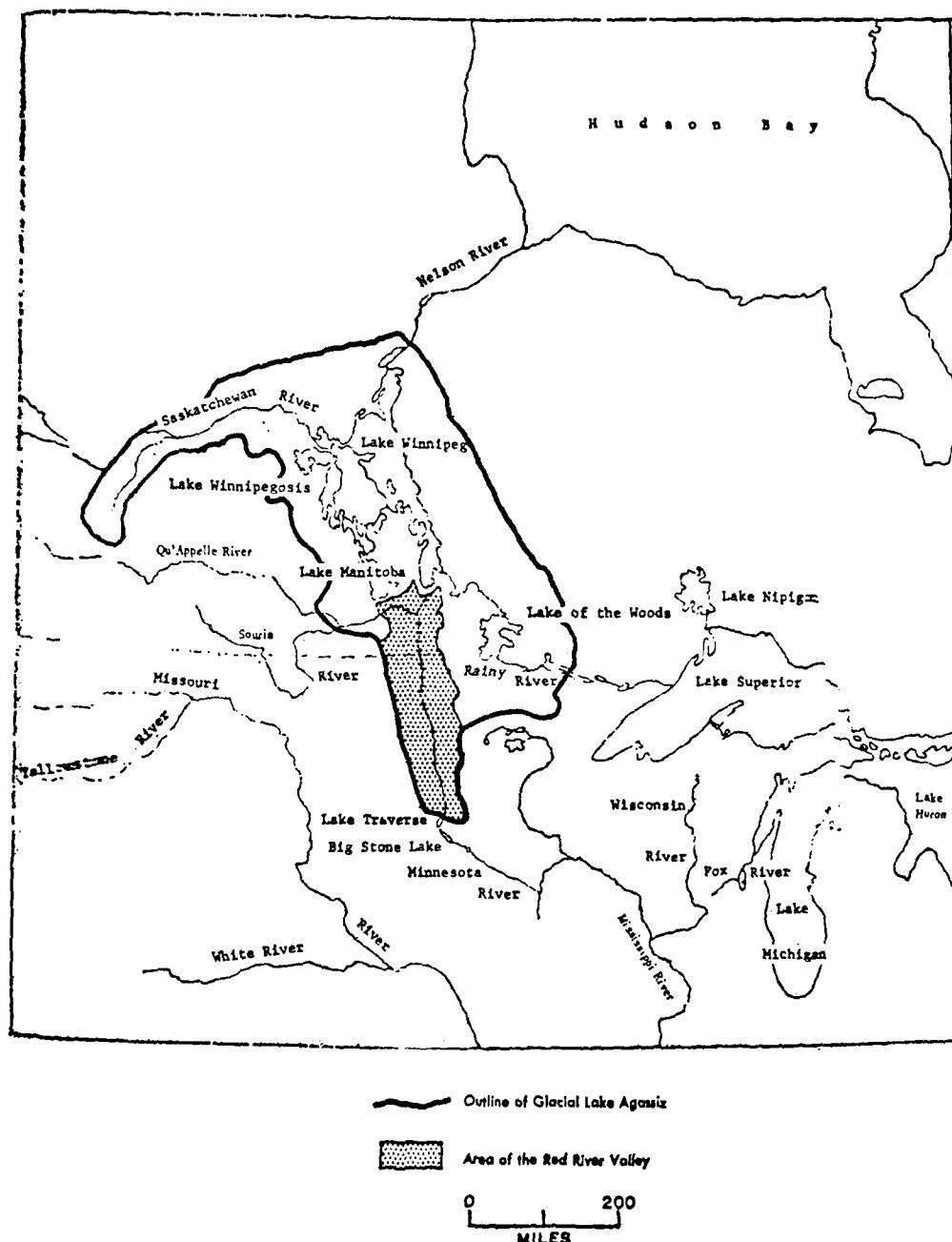
Norman and Clay Counties are bordered on the west by the Red River, and generally the land is quite flat except for the eastern sections which contain the beach lines of glacial Lake Agassiz. The topography has uneven, short slopes and numerous natural drainageways (Babcock 1909:32-40, Soil Survey 1974:108). The highest point in Norman County is called Frenchman's Bluff, morainic hills rising about 1300 feet m.s.l. in the southeastern section of the county (U. S. Soil Conservation Service 1974:108, Upham 1969:384, NCHC 1976:2).

The Red River of the North drains all of Norman and Clay Counties. Its primary tributaries in Norman County are the Wild Rice River and the Marsh River and in Clay County are the Buffalo River and the South Branch of the Wild Rice River. Numerous natural draws, creeks, and an extensive system of man made ditches also aid in draining excess water from farmlands (Anonymous 1916:6-8, U. S. Soil Conservation Service 1974:108, NCHC 1976:2, Upham 1969:119-120, 384).

The soils of the two counties formed in calcareous lacustrine deposits in the basin of glacial Lake Agassiz and in calcareous glacial till that has associated areas of alluvium and glacial outwash. A nearly level, calcareous, lacustrine deposit covers approximately three-fourths of the counties; with fine textured clay in the west which becomes progressively more coarse to the east, grading into silt, very fine sand, and finally sand and gravel on the gently sloping beach ridges (U. S. Soil Conservation Service 1974:105, Murray 1967:4-7).

The two counties have a subhumid, midcontinental climate characterized by wide variations in temperature from summer to winter. The mean temperature for winter months is 10° F., and

Figure 4: The Red River Valley and the Outline of Glacial Lake Agassiz



From Murray (1967:5)

for summer months, 68° F. The average growing season is 120 days, when approximately 60 per cent of the annual precipitation, an average of 21 inches, is received (U. S. Soil Conservation Service 1974:105, 108-110).

After the glacial era, the Red River Valley vegetation consisted mainly of tall prairie grasses, including prairie cordgrass, tall switchgrass, big bluestem, and Indian grass; and wetland reeds, sedges, meadow grasses, and swale grasses in the marshy areas (Pemble and van Amberg n.d.:21, Murray 1967:8, U. S. Soil Conservation Service 1974:105). The banks and narrow terraces of streams contain ash, elm, poplar, basswood, willow, aspen, hackberry, oak, cottonwood, and boxelder. The majority of the land in Clay and Norman County today is under cultivation with a minor portion being used for pasture. Clay County has the following land use statistics: forested 472 acres; cultivated 14,648 acres; pasture and open 1,399 acres; water 137 acres; and urban 276 acres. Norman County has similar land use statistics: forested 651 acres, cultivated 12,793 acres; pasture and open 506 acres; water 7 acres; and urban 77 acres (MSPA 1975:181, 221).

Originally, the Red River Valley included a large variety of large and small game animals as well as numerous fish and bird species. Today, Norman and Clay Counties contain considerably less species of fauna due mainly to destruction of habitats.

PREHISTORIC AND HISTORICAL OVERVIEW

PREHISTORICAL OVERVIEW

A summary of the prehistory of the project area is best understood when considered within the context of the over-all environmental setting. This environmental setting, during early cultural occupation, is dominated by glacial Lake Agassiz and through subsequent changes dominated by the geomorphological consequences of Lake Agassiz. This includes beach ridges, flat beach plain, the Red River, and its relatively diminutive tributaries (see Figure 4).

Late Paleo-Indian occupations or visitations in the area are documented by Johnson (1962:161-162) in Minnesota and North Dakota and have been tentatively dated at approximately 8,000 B.P. Michlovic (1979:5) recovered an Agate Basin projectile point which he suggests would indicate a Paleo-Indian occupation in the area around 8,000 to 9,000 B.P. Saylor (1975) describes what appears to be a Plano Culture occupation in Manitoba on the beach sands of Lake Agassiz.

From this evidence, it appears that Paleo-Indian peoples inhabited the area at these very early dates. However, the sparse evidence tends to lead us to believe that the population density during these early times was exceedingly low.

The period following the Paleo-Indian has generally been called the Archaic. During the Archaic from approximately 6,000 - 3,000 years ago, archaeological sites become more numerous and it is suggested that the population density in the area begins to expand. The best known Archaic Culture is the Old Copper Culture. Artifacts distinctive of the Old Copper Culture are large utilitarian objects, the regional distribution of which includes Minnesota, Wisconsin, and the upper Michigan peninsula and north into Manitoba and Ontario (Johnson, 1964:8 and Quimby and Spaulding, 1957:189-201). Within the general area, Johnson (1964) reports several Old Copper Culture sites in addition to sites generally south of Clay County. Michlovic (1979:7) reports the recovery of three Old Copper Culture artifacts in Clay County.

Other Archaic cultures exist in the area. Of these, the most common in Minnesota utilized a type of projectile point called the Parkdale Eared. Numerous sites have been found in the general Lake Agassiz basin containing this cultural manifestation as identified in Shay (1971:47-56) and Michlovic (1979:8-9), as well as others.

Michlovic (1979:8-9) shows that archaeologists tend to have two interpretations for the Parkdale Eared peoples. The first is that these are Early Archaic peoples depending upon

extinct bison for their livelihood. The second interpretation maintains that the Parkdale Eared peoples were a Late Archaic (more recent) manifestation. Michlovic, however, presents a well-reasoned argument for these peoples preceeding the Old Copper Culture peoples in the area and thereby being an Early Archaic group.

Post-Archaic peoples in and around the project area have a definite Plains orientation. Michlovic (1979:10) collected more than 12 projectile points, made from North Dakota brown chalcedony, which he identified as early Post-Archaic. The most commonly known Post-Archaic culture in the area is the Arvilla Complex. It is a manifestation which occurs around 1300 B.P. and seems to center in the Red River Valley. Johnson 1973:3) characterizes the Arvilla:

"Simply stated, the complex is characterized by linear and circular burial mounds underlaid by deep pits with complete and disarticulated primary burials, secondary burials, and a variety of associated grave goods. Among the latter are numerous ornaments of shell, bone, antler and teeth. Utilitarian objects of bone and antler are common but chipped stone tools are rare. Pottery vessels as grave goods are uncommon, though pottery elbow pipes are more numerous."

Additionally, pottery has been found in and around the Red River Valley which suggests occupations, or, at least contact with, other Post-Archaic peoples such as Blackduck, Kathio, and Oneota. To date, however, evidence of occupations by these people has not been found.

A summary of the prehistory of the project area and nearby environs indicates that prehistoric habitation has been long-term and consistent. The area, however, has not undergone the relatively frequent cultural transformations which characterize other geographical regions in Minnesota. Cultural types and traditions seem to maintain themselves for extended periods of time. This appears to be due to the fact that, after the drainage of glacial Lake Agassiz, the area maintained a particularly consistent Plains orientation. The Plains, with sparse but consistent resources, tended to maintain constant cultural patterns.

HISTORICAL OVERVIEW

Introduction

The project area is contained in Norman and Clay County which lie in the heart of the fertile Red River Valley in north-western Minnesota. This region of Minnesota has had a very interesting and colorful history and has had an important influence on the rest of the state. The following historical overview will briefly discuss some of the major events that occurred in the Red River Valley and make specific references to significant

events, places, people, dates, etc. that happened in Norman and Clay County. General background information on the counties will be followed by a discussion of historic Indians, early settlement, fur trade, agriculture, and transportation.

General Background Information

Norman County, thought to be named in honor of Norman W. Kittson, who was responsible for much of the commerce and immigration to the Red River Valley, was established on February 17, 1881 from a part of Polk County. Residents of the county and surviving members of the convention held by the state legislature for the county's establishment believe the county was named for commemoration of the great number of Norwegian (Norseman and Norman) settlers. In a 1910 census, Norman County had the largest proportion of Norwegian people of any Minnesota county (Anonymous 1958:5, Upham 1969:381, NCHC 1976:2-3).

Clay County, named after Henry Clay, a United States senator from Kentucky, was organized in April, 1872. Clay County was originally called Breckinridge County, but the name was changed on March 8, 1962, after John C. Breckinridge, vice president of the United States under James Buchanan, was indicted for treason and conspiracy for invading Kentucky (Anonymous 1916:6, Upham 1969:114, Johnson 1972).

Norman County has an area of 885 square miles and ranks 76th in population. In 1875, its population was 369, reaching 8,335 by 1885, peaking to 14,746 by 1940, and declining to 10,008 by 1970. Ada, founded in 1876, is the county seat and largest municipality (pop. 2,076) in the county (MSPA 1975:221, NCHC 1976:3-5). Other incorporated villages are Borup, Gary, Holstad, Hendrum, Perley, Shelly, and Twin Valley (Upham 1969:381-384, U. S. Soil Conservation Service 1974:110).

Clay County has an area of 1,045 square miles and ranks 12th in population (MSPA 1975:181). In 1860, the population of Clay County was 79, increasing to 10,362 by 1885, reaching 21,780 by 1920, growing to 25,337 by 1940, and peaking to 46,585 by 1970 (Johnson 1972:18-23, MSPA 1973:595). Since 1920, the county's population increase is due to an increase in the population of the city of Moorhead (Johnson 1972, MSPA 1973:595). Moorhead, first settled in 1971 and known as the "Head of Navigation on the Red River of the North" in its formative years, is the county seat and largest city in the county (Johnson 1972). Other municipalities include Averill, Baker, Comstock, Dilworth, Downer, Felton, Georgetown, Glydon, Hawley, Hitterdal, Rustad, Sabin, and Ulen (Upham 1969:114-119).

Historic Indians

A number of Indian tribes (Cree, Assiniboin, Cheyenne, Sioux, and Chippewa) occupied the Red River Valley between 1600

and 1850. These tribes were newcomers to the region and did not develop extensive agriculture, but exploited the natural resources of the valley. The streams had an abundant supply of fish such as sturgeon, pike, pickerel, crappies, white fish, catfish, etc. Additionally, the forested riverine environment was an excellent source of game and furbearing animals as well as birds. They found great quantities of beaver, mink, fishers, racoon, wolverine, elk, muskrat, martin, red deer, black bear, ducks, geese, pelicans, cormorants, eagles, etc. Furthermore, most of these tribes cultivated gardens at their permanent villages as well as gathering wild fruits, including plums, cherries, strawberries, highbush cranberries, huckleberries, grapes, raspberries, gooseberries, chokecherries, etc. In addition, the fertile valley pastures provided an ideal environment for huge herds of bison, which were essential to these tribe's way of life. After the introduction of the horse to the plains in the 18th century, these tribes became more efficient in their hunting techniques and more dependent on the bison for their subsistence. The bison provided food, skins for shelter and clothing, and bones for weapons and tools (Flandrau n.d., Murray 1967:11-15).

As successful as the woodland-and-prairie culture seemed to be, it began to decline by the 19th century. Encroachment of white settlements; a decline in the fur resources, which these tribes depended on for trade goods; dessimation of the bison herds; indebtedness to white traders, disease, and alcohol addiction contributed to the breakdown of their lifestyle. In 1851, the Sioux ceded all of their lands east of the Red River; followed by the Chippewa Red Lake and Pembina bands giving up their claims on both sides of the river in 1863. By 1865, the influence of these tribes on this region was drastically reduced (Murray 1967:11-15).

Early Settlement

The Red River Valley was visited by explorers, traders, hunters, missonaries, and others, but Indian hostilities during the Civil War drove many settlers out of the region (Cole 1909:280-297, NCHC 1976:2). It wasn't until 1870 that settlers came in significant numbers. Many of the early settlers in Clay and Norman Counties came from southern Minnesota, Iowa, Wisconsin, and Europe and were of Scandinavian origin. However, during the seventies and eighties there were increasing numbers of Germans as well as Irish, Swiss, English, French, Scots, Poles, Welsh, and Jewish being represented (Johnson 1972:2).

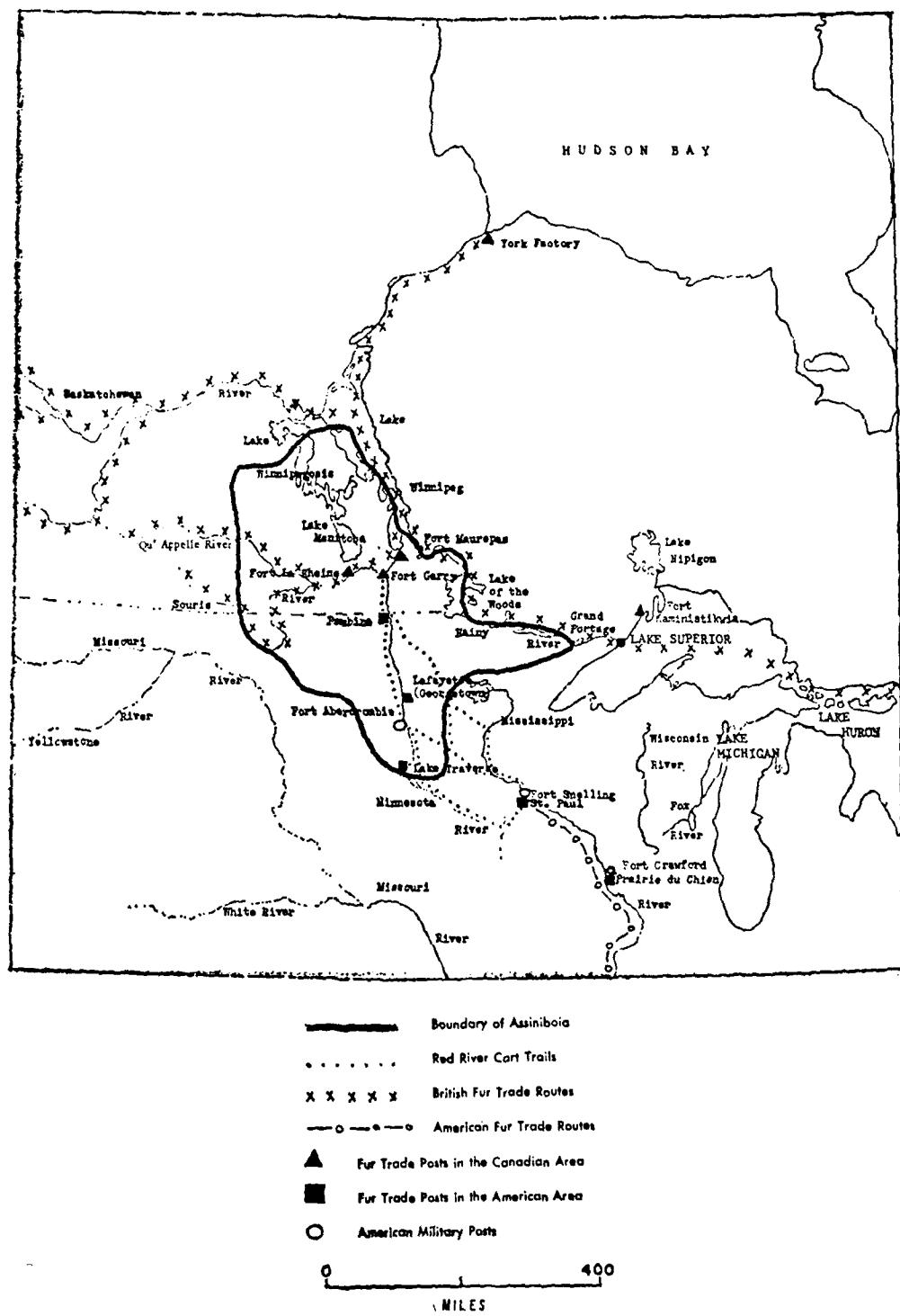
Fur Trade

The fur trade was a very important industry in this region from 1790 to the mid 1800's, and Murray (1967:12) states, "...the Red River country was one of the best fur-producing areas of the Northwest..." Although the British began operations at Hudson's Bay in the 1670's, the French were the first to exploit the Red River region, and in 1732 La Verendrye found the water route to the Lake of the Woods, Lake Winnipeg, and the Red River (Winship 1909:73-95, Coffin 1870, Murray 1967:16). In 1821, the British Hudson's Bay Company merged with its competitor, the Northwest Fur Company and continued operating under the name of Hudson's Bay Company. Because of the extermination of the beaver in the North, this company was forced to go farther south and established a fur trading post in 1859 at Georgetown in Clay County, the most southerly built on the Red River (see Figure 5). It continued to operate until the post was moved to Grand Forks in 1875 (Johnson 1972:2). A reconstructed warehouse was dedicated and an historical marker was unveiled at the site on May 2, 1970 (Johnson 1972:6). The Red River Valley declined as a fur-producing region after 1810, but because of its location, it continued to be a major administration and supply point for exploration and exploitation (Murray 1967:15). Furthermore, Murray (1967:25) states, "The transition from fur trading to farming was not yet complete, but there was little question in 1870 that men devoted to agriculture would shape the future of the Red River Valley."

Agriculture

Today agriculture is the leading industry in Clay and Norman Counties as well as the whole Red River Valley. Murray (1967:16-17) explains that the struggle for control of the fur trade between Hudson's Bay Company and the Northwest Company led to the development of Red River agriculture. In 1811, the Hudson's Bay Company granted a tract of land to Thomas Douglas, Fifth Earl of Selkirk, who was responsible for the immigration of Scottish and Irish farmers to the confluence of the Red and Assiniboine Rivers in 1812. Douglas thought these settlers could provide agricultural supplies to the Hudson's Bay Company, and these and other settlers established the first permanent farms in the Red River Valley (Bryce 1909, Twamley 1909:370-375, Flandrau n.d., Shepard 1909:194-211, Murray 1976:16-17). Between 1812 and 1870, these early agriculturists dispelled rumors that grain would not grow in this area, improved crops and livestock, introduced farm machinery, and convinced observers that the future of the valley lay in agriculture (Shepard 1909:73-95, Murray 1967:29). These early farmers raised wheat, potatoes, barley, oats, corn, flax, hemp, white clover, timothy, a variety of vegetables, and tobacco, which proved to be

Figure 5: The Red River Valley and the North American Fur Trade



From Murray (1967:14)

unsuitable for this region (Shepard 1909:73-95, Lamphere 1909: 212-245, Murray 1967:36-38). Livestock such as cattle, swine, sheep, horses, and poultry were also important to each farmer's subsistence (Shepard 1909:73-95, Murray 1967:39).

After 1870, agriculturists had prosperous as well as lean years, and many changes occurred. Commercial farming developed between 1876 and 1878, and between 1879 and 1885, known as the "bonanza-boom years," the Red River Valley received more settlers than any area its size, and new technology and crop production increased dramatically (Shepard 1909:73-95, Lamphere 1909: 212-245, Murray 1967:104-221).

Following the "boom years," agriculture entered its modern stage of development, and through diversification, new techniques and technology, experimentation, proper management, and scientific research coupled with rich and fertile soil made this region one of the best agricultural regions in the world. Murray (1967:221) states, "...the valley of the Red River of the North has become one of the most stable and productive agricultural regions in the world."

Agriculture remains the leading industry in Norman and Clay Counties, and wheat, barley, oats, sugar beets, sunflowers, soybeans, and corn are the principal crops. Since the 1940's livestock-oriented farming operations in these two counties have been greatly reduced (U. S. Soil Conservation Service 1974:110).

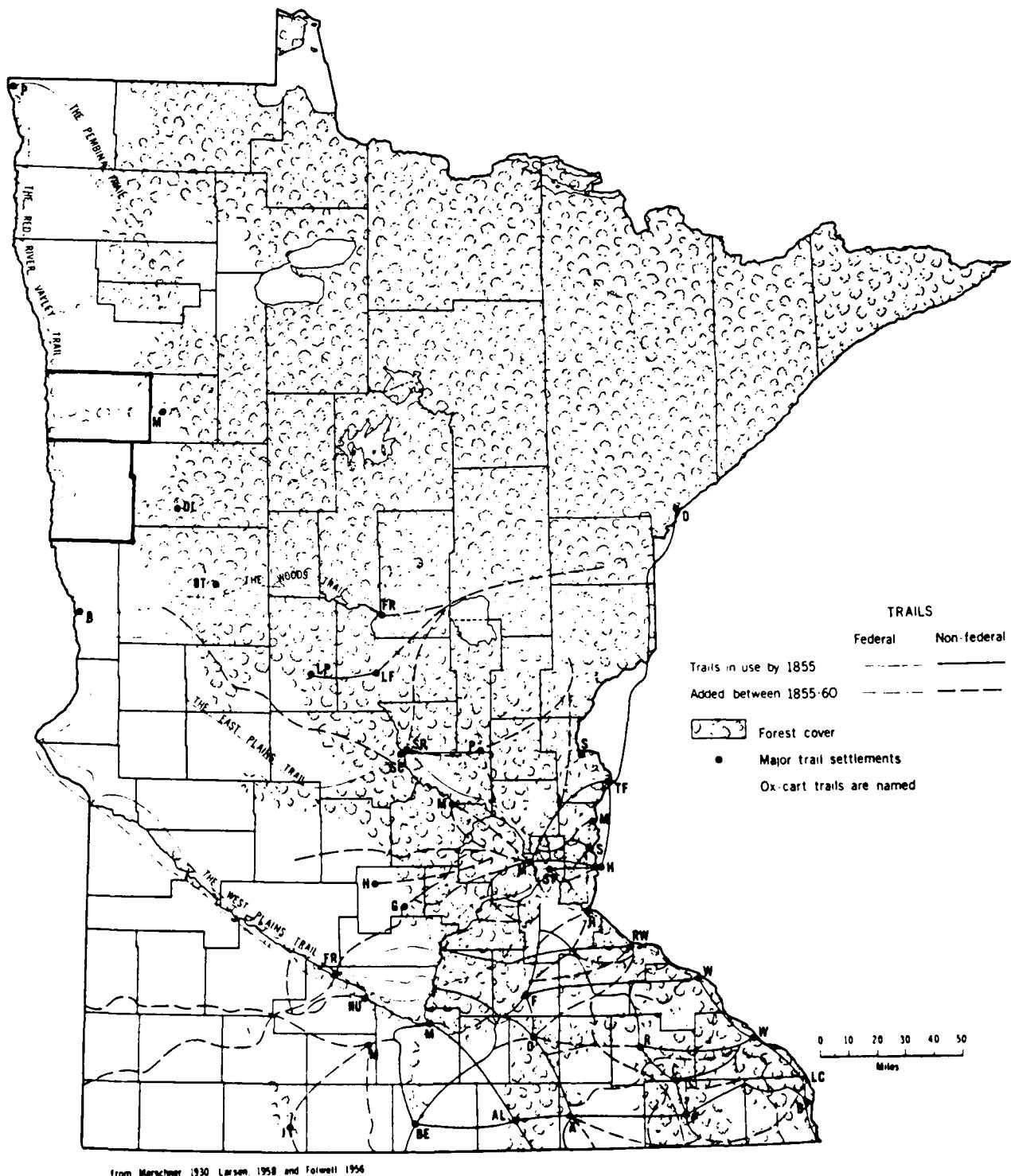
Transportation

The early settlers in Clay and Norman Counties found transportation and travel difficult because of the lack of roads. The nearest supply point and grain market was Alexandria, Minnesota, a distance of two hundred miles, or limited supplies could be obtained at the trading post at Georgetown (NCHC 1976: 2).

The Red River ox carts, a product of the early Scottish farmers, were the first reliable means of transportation, travel, and supply in the valley (Johnson 1972:8). By 1844, transport facilities were established between the Red River Valley and the head of navigation on the Mississippi River (Murray 1967:18). Three trails passed south and east from Pembina, on the Minnesota Canadian border, to St. Paul (see Figure 6). The Red River Valley Trail passed through western Clay and Norman Counties, and the East Plains Trail went through the eastern part of these two counties (Merrifield 1909:332-338, Borchert and Yaeger 1968:136, Johnson 1972:8-9. NCHC 1976:5) For thirty years these colorful caravans brought supplies and immigrants to the Red River Valley.

Steamboats were also an important transportation facility in the development of the Red River Valley. The "Anson Northup" was the first steamboat to navigate the Red River in 1859

Figure 6: Pre-Railroad Settlement Trails



From Borchert and Yaegar (1968:136)

(Merrifield 1909a:339, Johnson 1972:27). The steamboats "International," built at Georgetown in 1860, the "Manitoba" and "Minnesota," built at Moorhead in 1874, the "Selkirk," built in 1871, and the "Pluck," put into service in 1878 were used on the Red River (Johnson 1972:29-36). By 1878, steamboat traffic on the river began to dwindle because of the railroad industry, and by 1886 its importance in the Red River Valley was greatly reduced (Johnson 1972:31).

Stage and freight lines were also established in the Red River Valley. In 1860, the Minnesota Stage Company extended a stage line between St. Cloud and Georgetown. Thompson's Station in Clay County was a regular stop during the oxcart, stage coach, and early steamboat days (Johnson 1972:27-31). The stage lines were established in connection with steamboating, and these lines, as well as the steamboats, gave way to the railroad industry.

The railroads first developed in the Red River Valley between 1870 and 1878. "They furnished transportation facilities; they encouraged settlement; land surveys, and the establishment of civil government; they colonized portions of their grants; they helped to develop large-scale wheat farms; and they began to promote diversified agriculture (Murray 1967:57)."

The rails of the St. Paul and Pacific Railroad, later called the Great Northern, were the first to reach the Red River in 1871, connecting Minneapolis and Breckenridge (Merrifield 1909b:346-355). In Norman County, (see Figure 7) tracks were laid south of Ada in 1872 extending to Crookston and Fisher, followed in 1883 by a line running through Perley, Hendrum, and Halstad, and in 1886, a third line was built through Twin Valley and Gary (NCHC 1976:3).

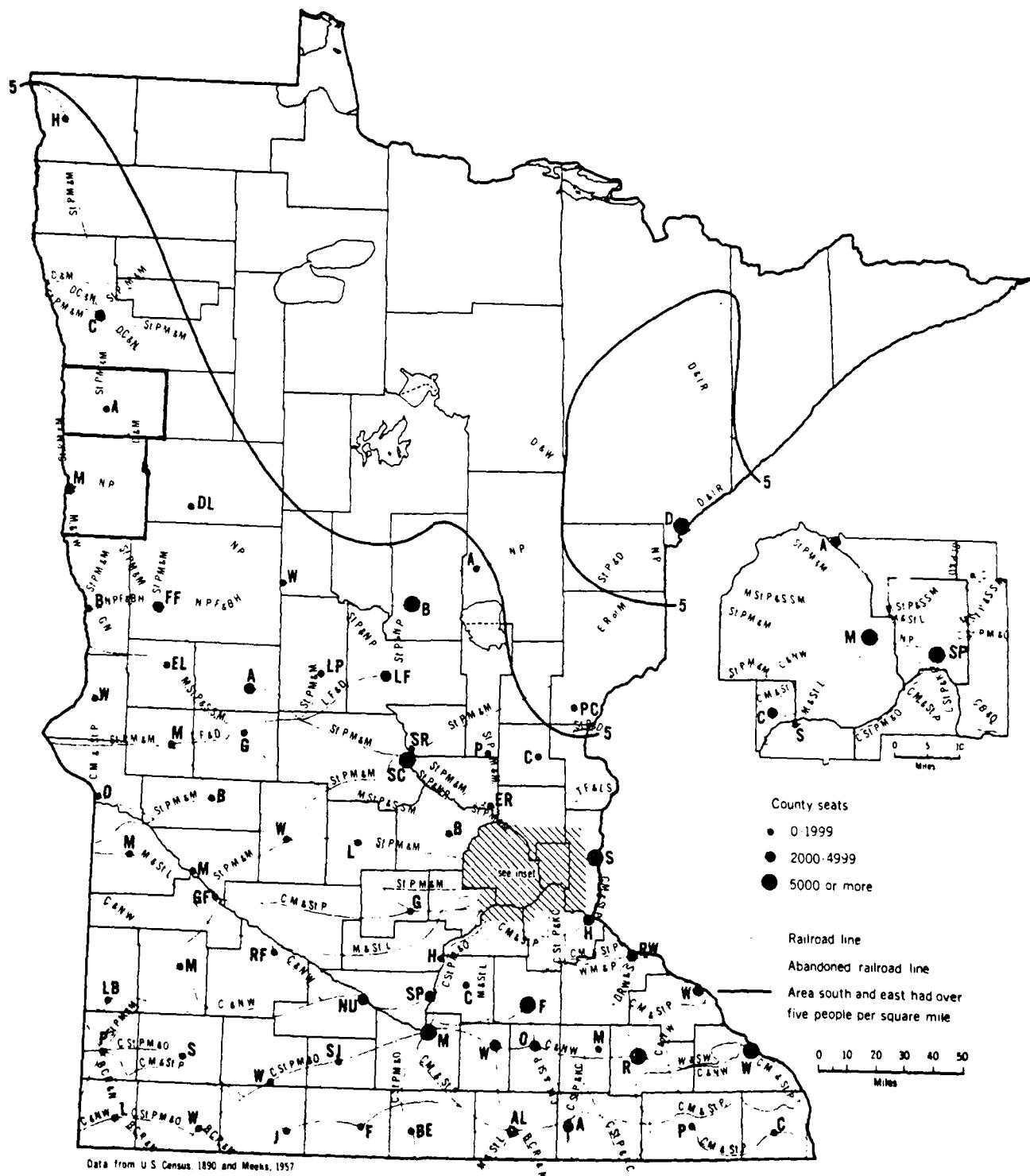
The Northern Pacific Railroad was the first to build a railway in Clay County, connecting Duluth and Moorhead in 1871. As can be seen in Figure 7, the Northern Pacific and the St. Paul and Pacific established a crossing at Glydon in 1872; other lines were completed to Barnesville in 1879 and Kragnes in 1883 (Merrifield 1909b:346-355, Johnson 1972:43-45).

The railroad industry was very instrumental in the development of the Red River Valley and has continued operations to the present day. Today transportation in Clay and Norman Counties is facilitated by many major highways and roads, providing for efficient travel and the transport of commercial goods and agricultural products.

Conclusion

This summary of the history of the Red River Valley, with emphasis on Norman and Clay Counties, is certainly not complete. It was intended to be a brief overview of the major historically significant events, places, people, dates, etc. of the region

Figure 7: Constructed Railroad Lines, 1890



From Borchert and Yaegar (1968:139)

A better understanding and a more complete picture of the history of this area can be obtained by consulting the above cited references.

SURVEY METHODS

LITERATURE SEARCH AND RECORDS CHECK

An intensive literature search and records check was conducted in order to understand the extent of known cultural resources in or near the survey area. In so doing, pertinent information was gathered and integrated for a comprehensive background of the history and prehistory of the area. This was not limited, however, to data relevant to known cultural resources. Information pertaining to the soils, topography, geology, etc. was also collected.

In conducting the literature search, the office of the State Archaeologist and the State Historic Preservation Office were visited. Additionally, Dr. Michael Michlovic and Jan Streiff, who have done work in the project area were contacted. Other repositories such as the Norman County Historical Society, Ada, Minnesota, the Clay County Historical Society, Moorhead, Minnesota, the Ulen Historical Society, Ulen, Minnesota, the Soil Conservation Service for Clay and Norman County, and the Minnesota Room of the Mankato State University Library were checked.

Additionally, several local collectors and land owners were interviewed for information concerning cultural resources in or near the project area.

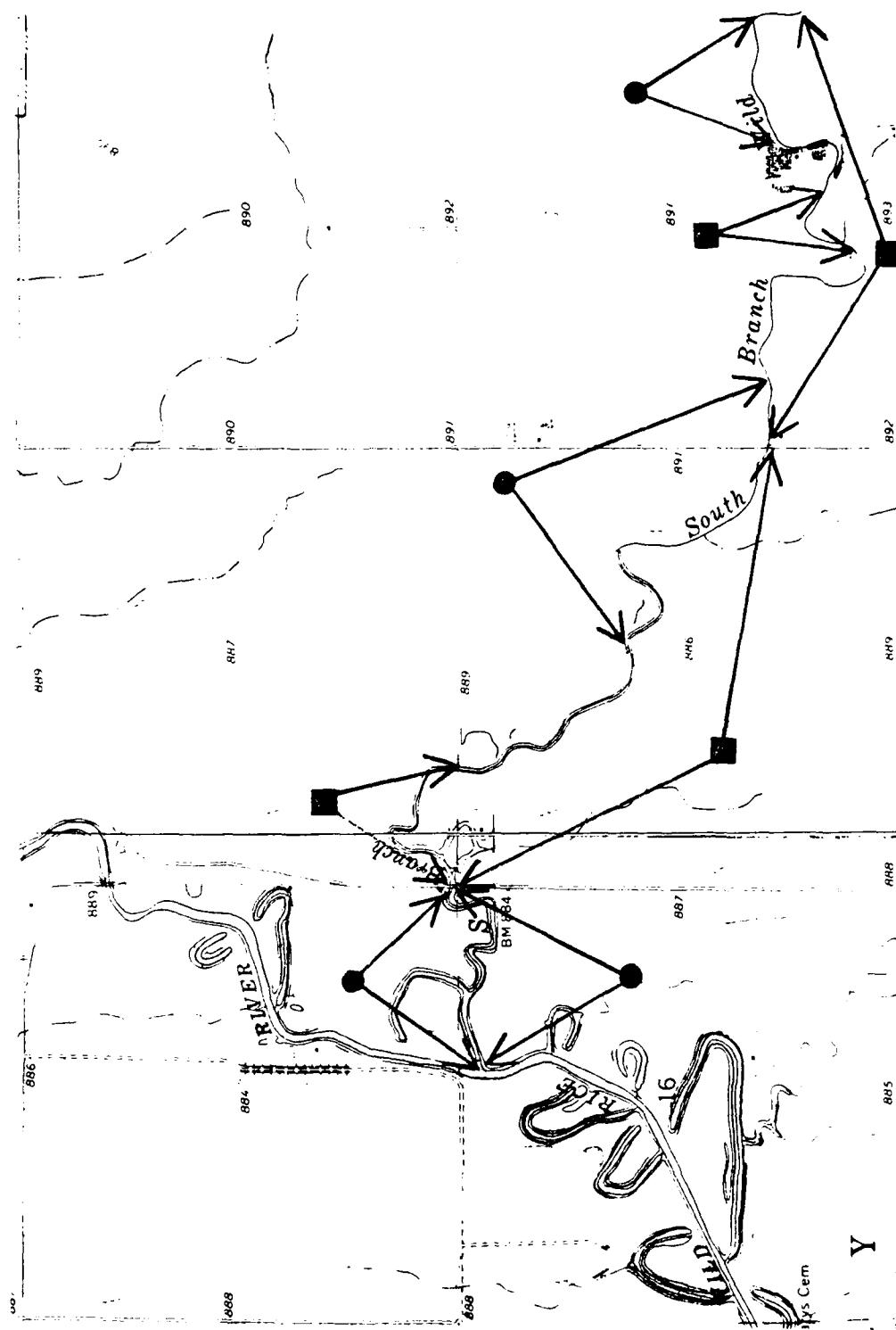
FIELD METHODS

The goal orientation of a project plays an integral part in determining the combination of field survey methodologies to be utilized. As defined in the Scope of Work, the primary goal of this project was a Phase I cultural resource survey. This entails an intensive on-the-ground reconnaissance with sufficient subsurface testing to determine the number and extent of cultural resources within the project universe. Thus, the field methods utilized for this project were ground surface reconnaissance and subsurface shovel testing.

Ground Surface Reconnaissance

The entire length of the Felton Ditch and the South Branch of the Wild Rice River (65.5 miles) was visually examined at a 15 meter (50') interval (see Figure 8). Because the survey corridor was an average of approximately 100' wide, two individuals could adequately survey the corridor. Each individual surveyed in a weaving or zig-zag manner in order to maximize the ground coverage. Although portions of the survey area were not

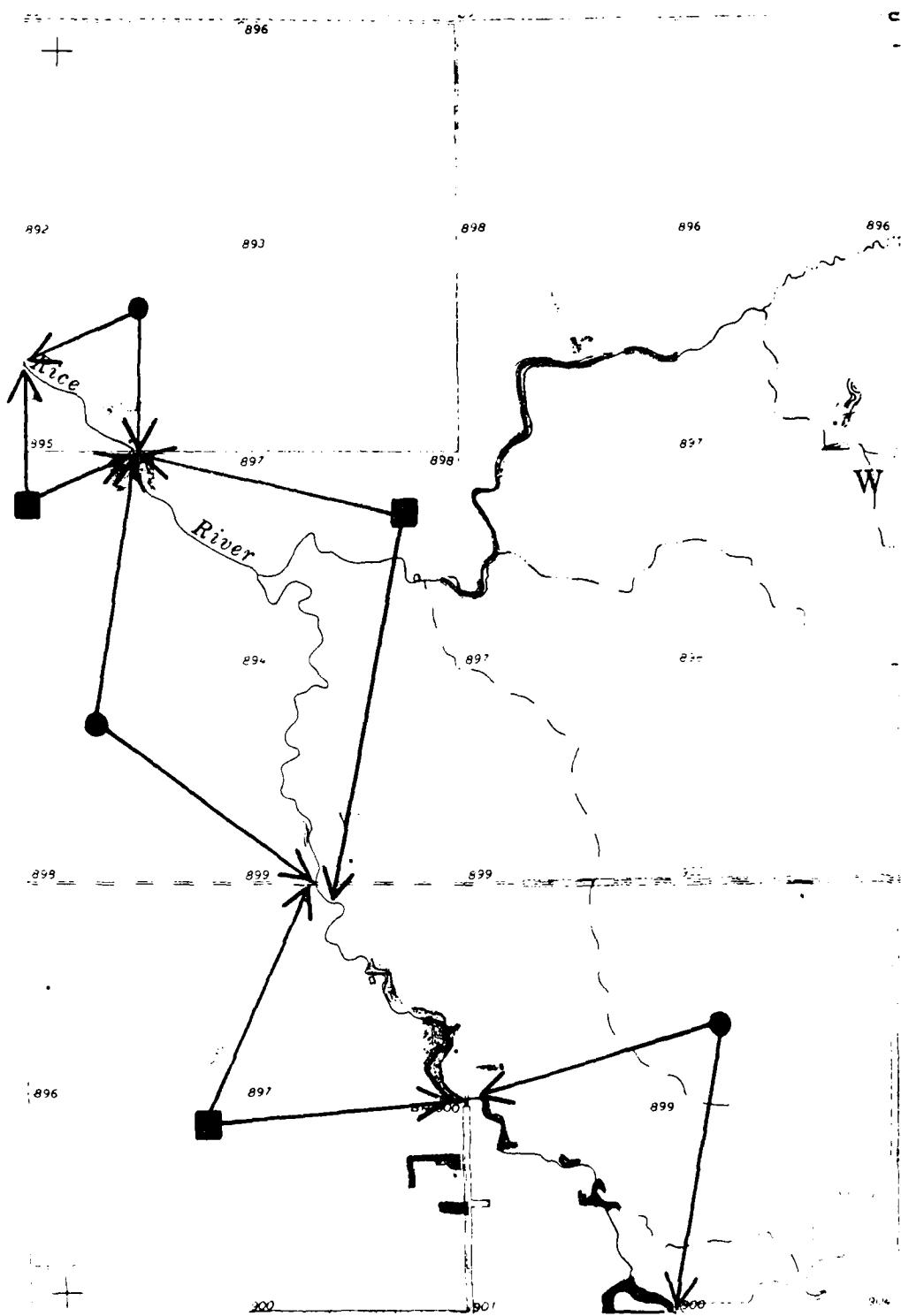
Figure 8: United States Geological Survey Maps Indicating Areas That Were Reconnoitered and Shovel Tested



From U.S.G.S. Felton NW (1966) and Borup (1966) Quadrangles, 7.5 Minute Series

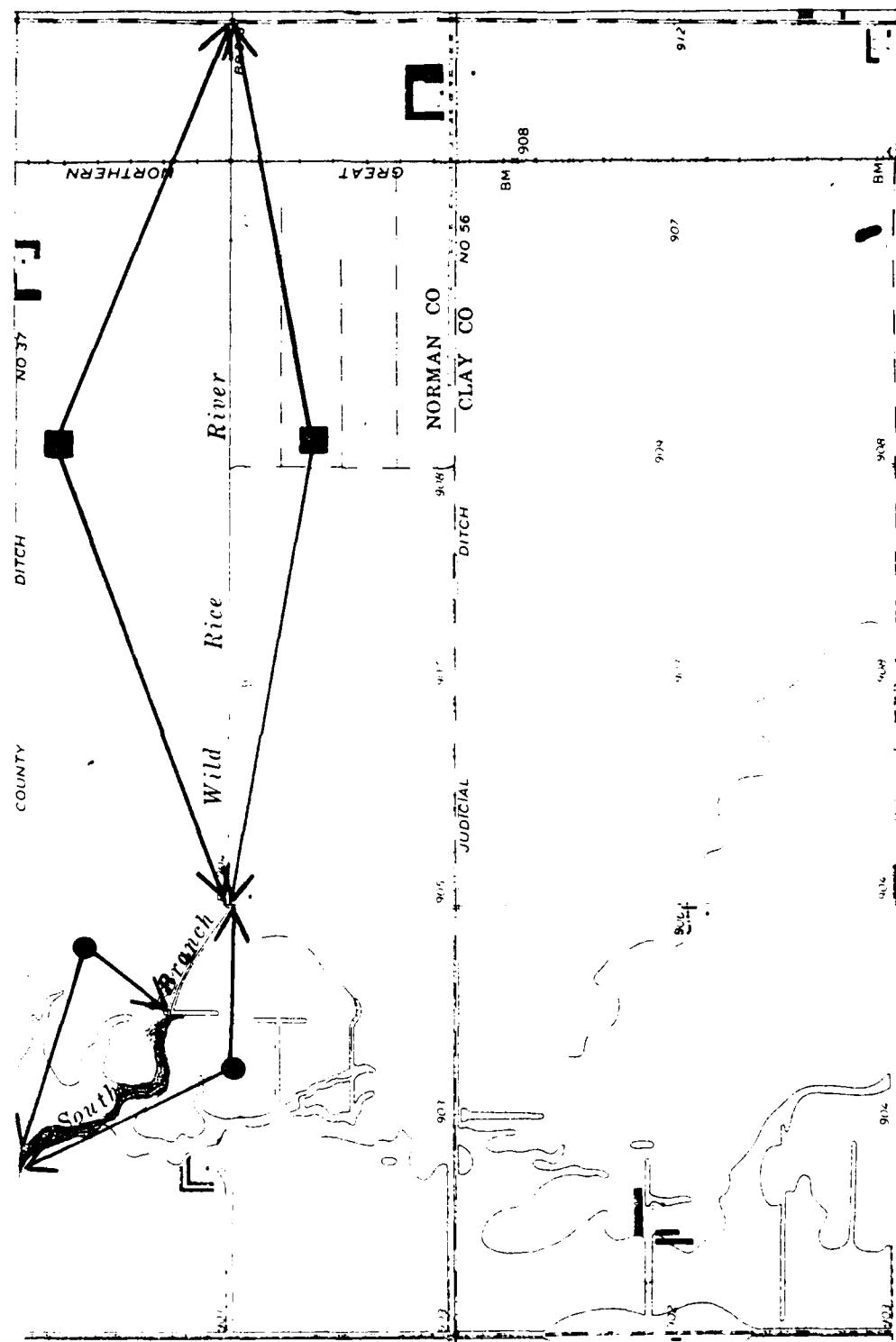
- Indicates reach of the corridor that were surface reconnoitered
- Indicates reach of the corridor that were surface reconnoitered and shovel tested

Figure 8: (Continued)



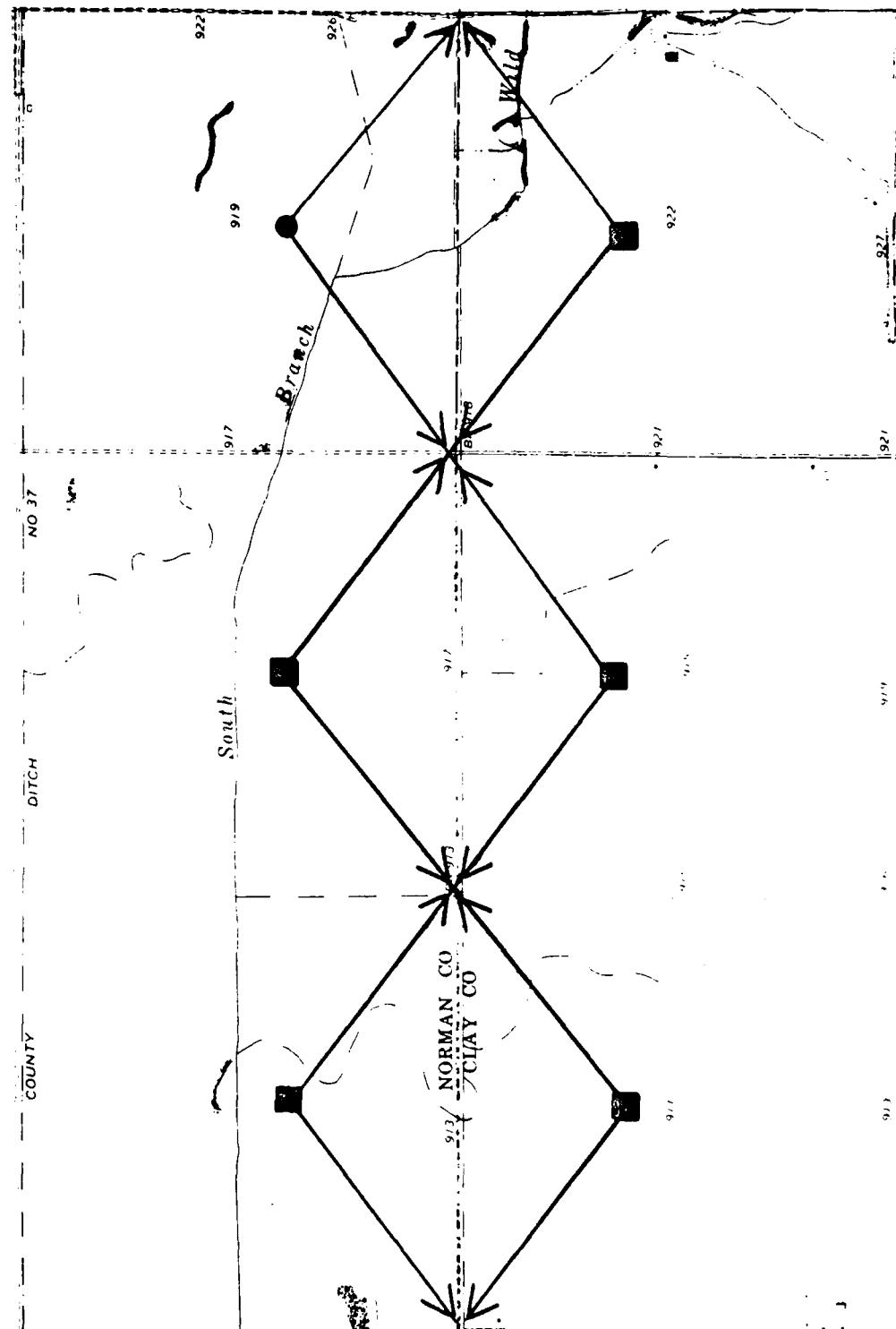
From U.S.G.S. Borup (1966) Quadrangle, 7.5 Minute Series

Figure 8: (Continued)



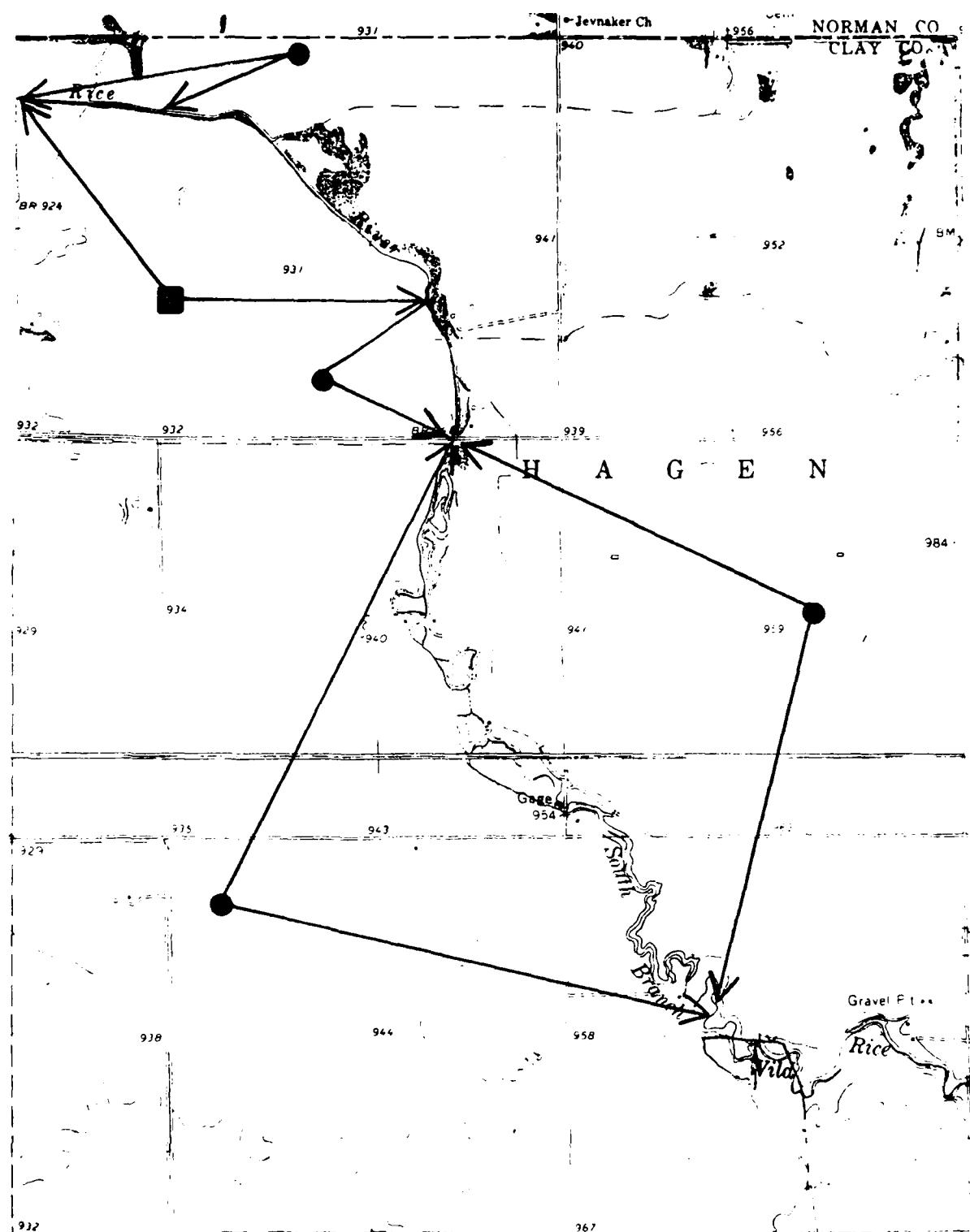
From U.S.G.S. Borup (1966) Quadrangle, 7.5 Minute Series

Figure 8: (Continued)



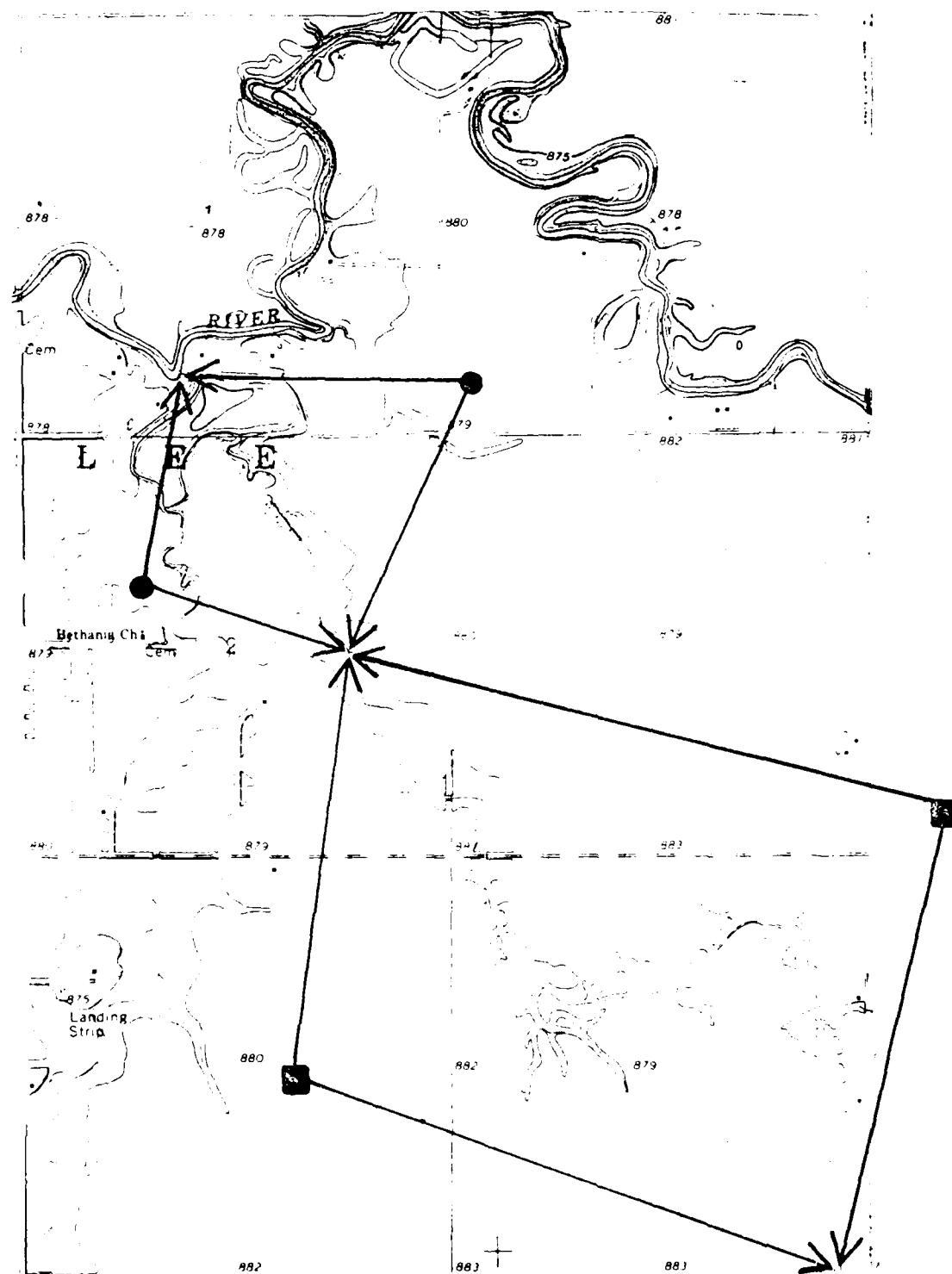
From U.S.G.S.: Ulen NW (1965) Quadrangle, 7.5 Minute Series

Figure 8: (Continued)



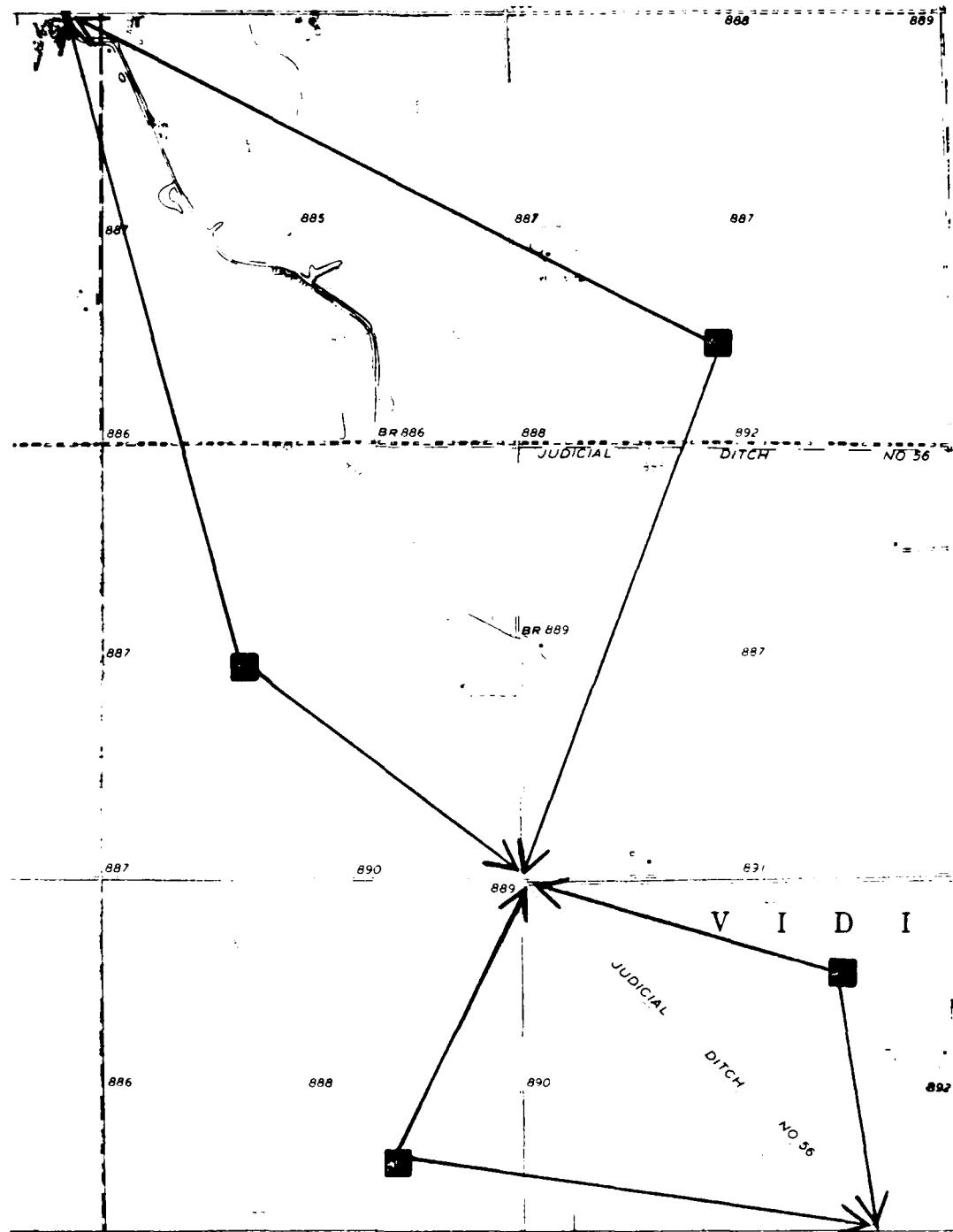
From U.S.G.S. Ulen NW (1965) and Ulen SW(1966) Quadrangles,
7.5 Minute Series

Figure 8: (Continued)



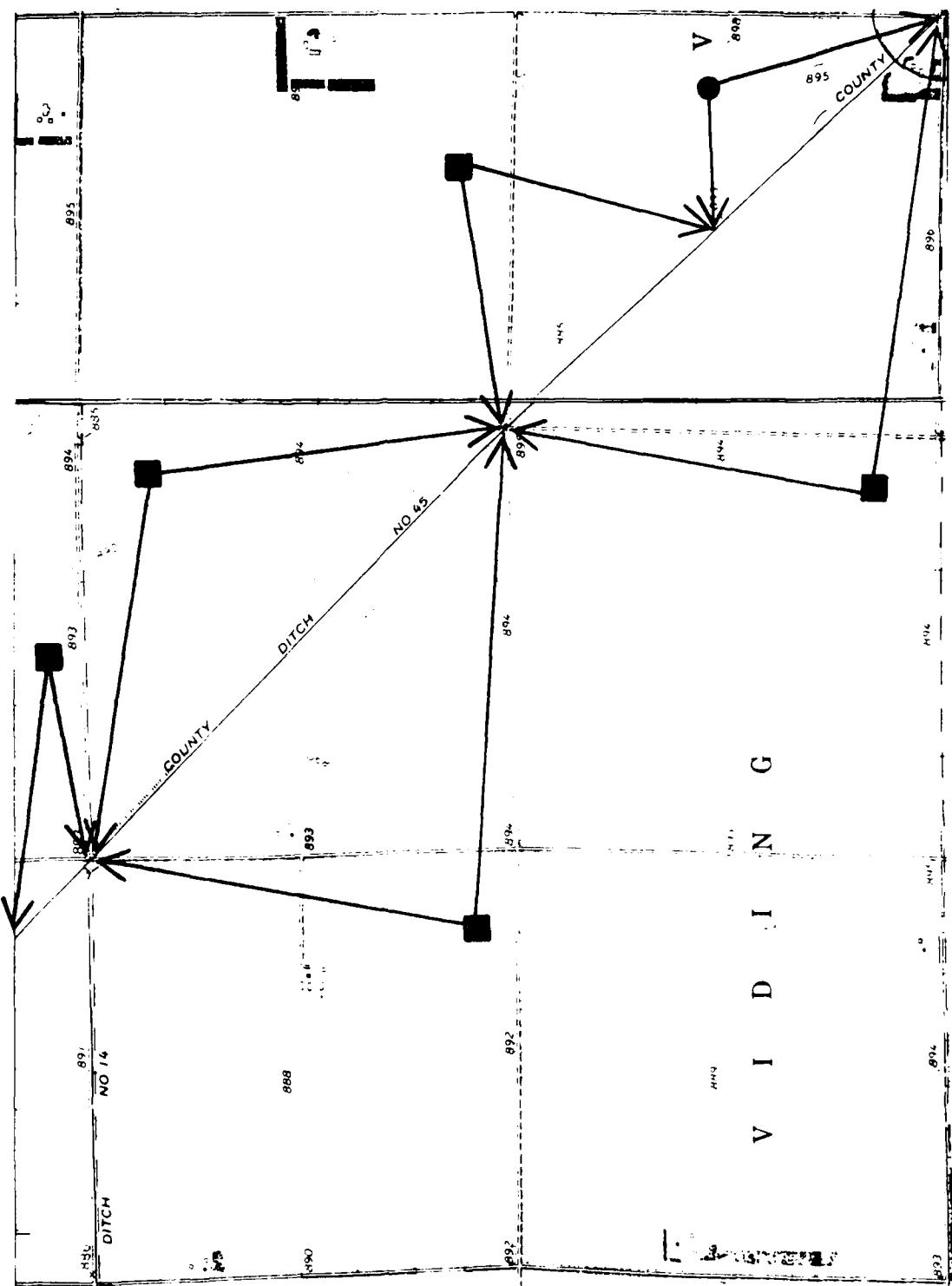
From U.S.G.S. Felton NW (1966) Quadrangle, 7.5 Minute Series

Figure 8: (Continued)



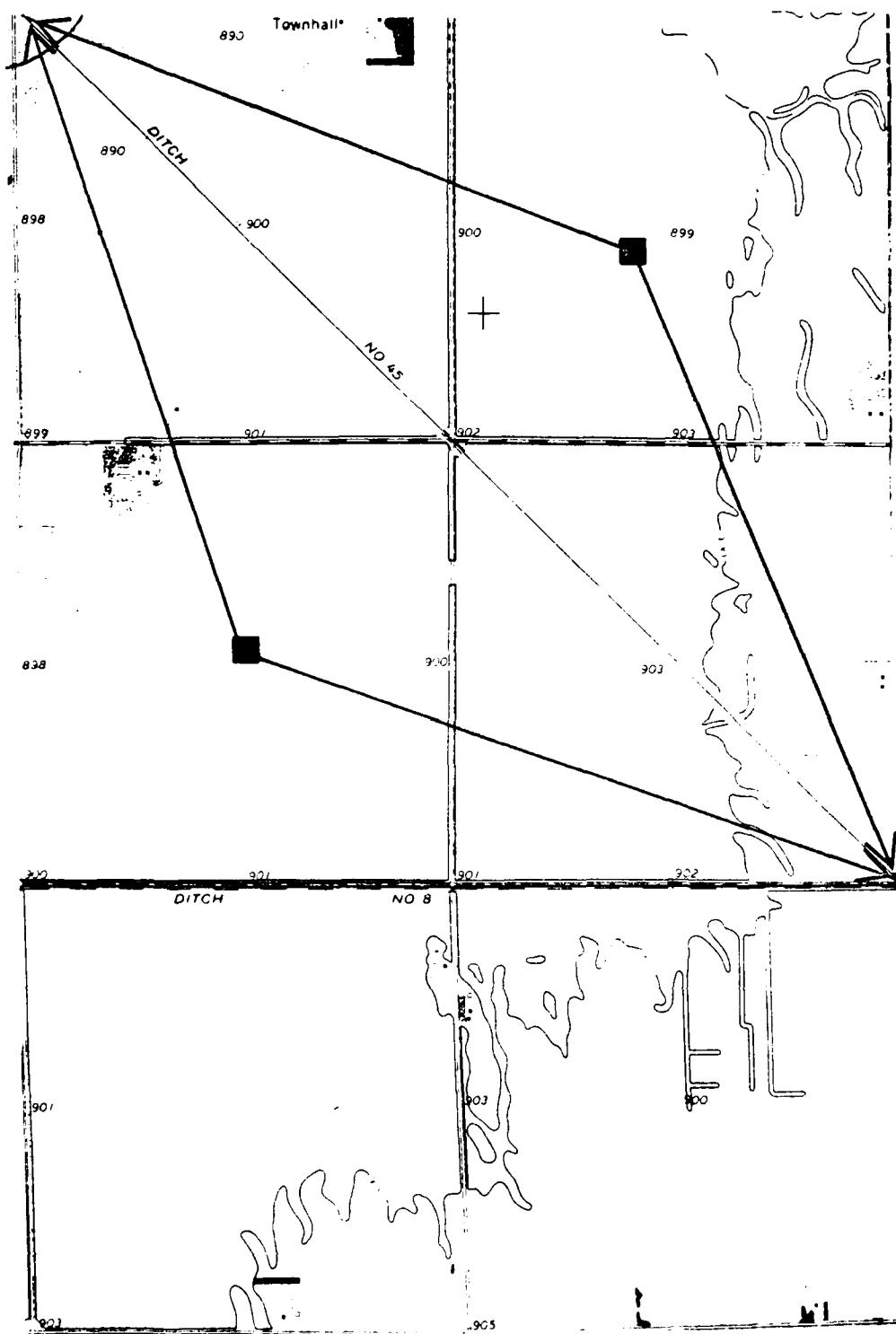
From U.S.G.S. Felton NW Quadrangle (1966), 7.5
Minute Series

Figure 8: (Continued)



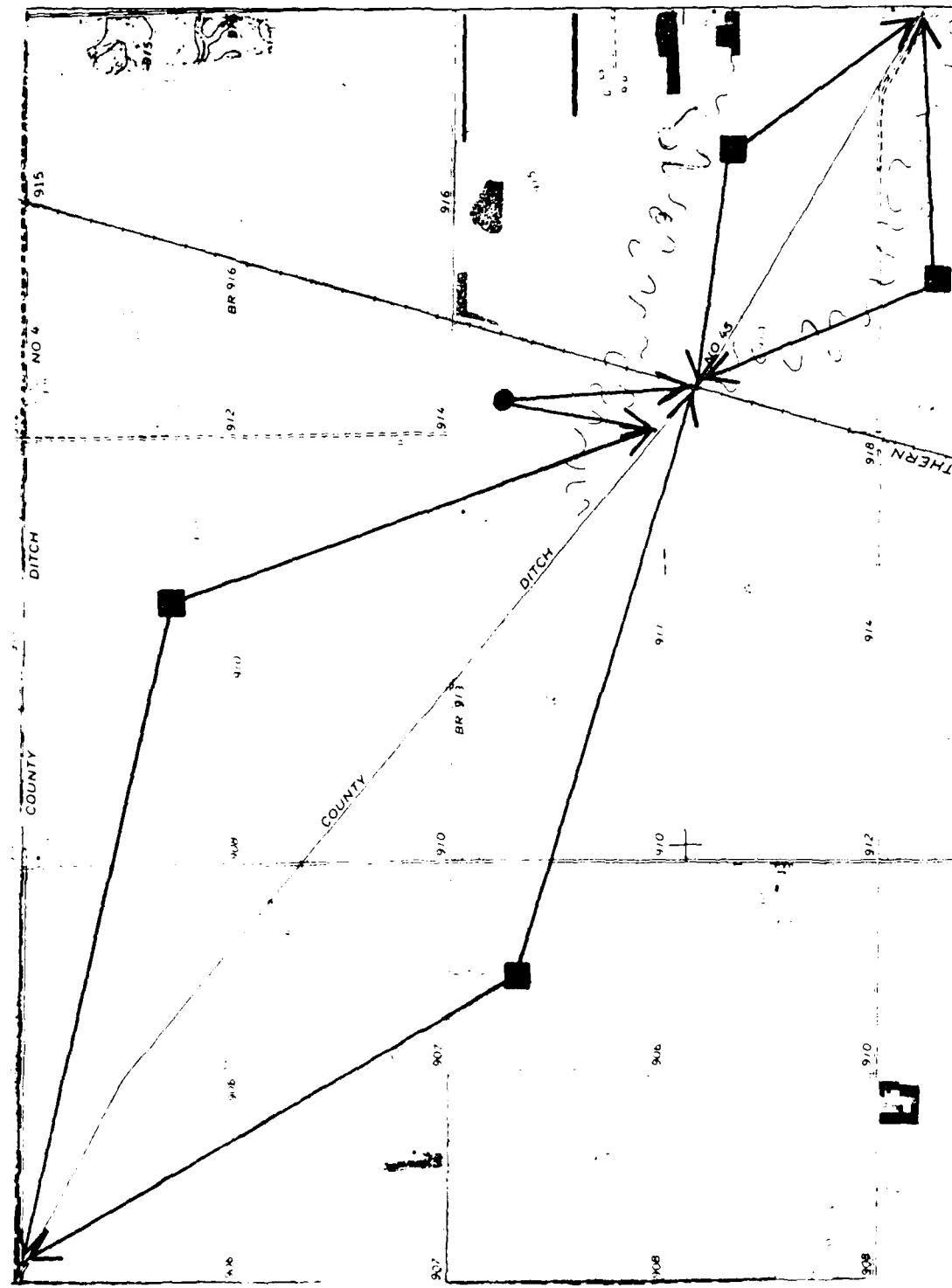
From U.S.G.S. Felton SW(1966) and Felton (1966) Quadrangles, 7.5 Minute Series

Figure 8: (Continued)



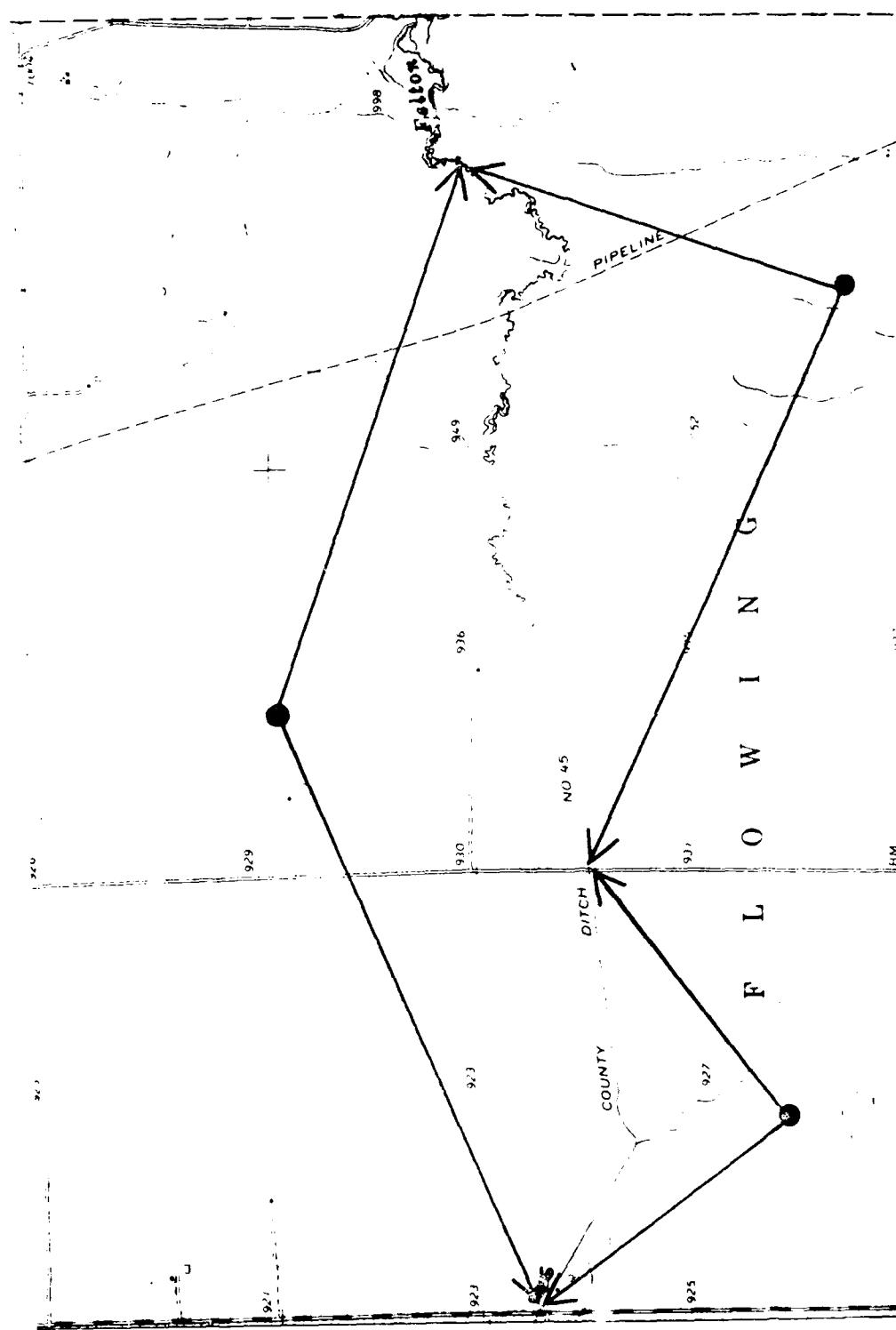
From U.S.G.S. Felton (1966) Quadrangle, 7.5 Minute Series

Figure 8: (Continued)



From U.S.G.S. Felton (1966) Quadrangle, 7.5 Minute Series

Figure 8: (Continued)



From U.S.G.S. Ulen SW (1966) Quadrangle, 7.5 Minute Series

amenable to adequate visual examination due to low ground surface visibility, they were still reconnoitered with the intent of locating differential vegetal growth which might be indicative of past human occupation, differential soil color and texture, or randomly scattered open areas where visual examination was possible. Along the South Branch and Felton Ditch, the cut banks were checked for deeply buried sites except where vegetal cover was too heavy.

Subsurface Shovel Tests

Three factors were considered in the placement of the shovel tests. First, in all areas where the ground surface visibility was less than 75%, shovel tests were dug. Second, based upon intuition and experience, the areas having a high probability for site location were shovel tested, regardless of the ground surface visibility. Third, the shovel tests were placed in plowed fields as a verification of the results of the surface reconnaissance (See Figure 8).

Along the South Branch and Felton Ditch where there were isolated stands of trees or reasonably small areas of low surface visibility, several shovel tests were placed without utilizing a standardized interval. In linear areas of low surface visibility, where thorough surface reconnaissance was impossible and the probability of site location was low, shovel tests were dug at a standardized 100 meter interval. In areas where thorough surface reconnaissance was difficult but the probability of site location was greater, the interval between subsurface units was decreased. In some cases, the interval was less than 15 meters.

These units were generally 50 cm. by 50 cm. and dug in 10 cm. artificial levels. The depth of the various units was dependent upon varying field conditions but the average depth was approximately 40 cms. Where the soil was dry enough to screen, it was processed through $\frac{1}{4}$ " mesh screens. Otherwise, it was examined by hand or by use of the trowel.

LITERATURE SEARCH AND PERSONAL INTERVIEWS

PREVIOUS SURVEYS

Archaeological investigations prior to this project have been relatively limited in both Clay and Norman Counties.

Streiff (1974) conducted a survey for the St. Paul District, Corps of Engineers within the proposed Twin Valley Reservoir. The field survey included areas along the Felton Ditch, the South Branch of the Wild Rice River, and the Twin Valley Reservoir of the Wild Rice River. Of all the areas examined, none yielded cultural material except for a single artifact found along Marsh Creek north of the project area.

Michlovic (1976) conducted a survey of proposed rock bank protectors in the Wild Rice River watershed for the St. Paul District, Corps of Engineers. In all, 10 sites along a 30 mile stretch of the river were checked. Of these, 4 areas fall within 2 miles of either the Felton Ditch or the South Branch of the Wild Rice River in Township 143N, Range 47W (Mary Township). The first is in the northwest $\frac{1}{4}$ of Section 19 less than 1 mile northeast of the Felton Ditch. Surface reconnaissance was conducted and one $\frac{1}{2}$ meter test unit was dug. No cultural material was recovered from this area. The second area checked was in the northeast $\frac{1}{4}$ of Section 9 less than 1 mile north of the South Branch. Here the area was already disturbed and no cultural material was found. The third area is in the northeast $\frac{1}{4}$ of Section 16 located on the bank just opposite the confluence of the Wild Rice River and the South Branch. A $\frac{1}{2}$ meter test unit was dug which yielded no cultural material. The last area is located in the southwest $\frac{1}{4}$ of Section 3 on an old ox bow of the Wild Rice River. Again, no cultural material was recovered.

Michlovic (1977) also conducted a survey of three river bank stabilization construction sites in Clay and Norman Counties. Of these three, only one falls in close proximity to the project area. It is along the bank of the South Branch in the southwest $\frac{1}{4}$ of Section 9 in Township 142N, Range 45W. No cultural material was found at this location.

Lane (1978) conducted a literature search for the U.S. Fish and Wildlife Service of documented historic and archaeological sites on waterfowl production areas in 19 Minnesota and 7 Wisconsin counties, in addition to archaeological survey and testing of prehistoric sites on National Wildlife refuges in Illinois. In terms of the literature search in Norman County, 21 historic buildings were located, 20 being farm buildings and 1 church. However, none of the above sites were found within the immediate survey area.

Michlovic (1978) conducted intensive testing on a prehistoric site in the M. B. Johnson Park north of Moorhead. The site

was originally surveyed in the spring of 1977. It had a Middle and Late Woodland component with numerous flakes, triangular projectile points, and shell tempered pottery. The site is located in Section 29, Township 140N, Range 48W, Oakport Township, Clay County.

Michlovic (1979) conducted an archaeological survey in Clay County for the Minnesota Historical Society. The over-all goal of the statewide survey was to obtain a general overview of the prehistoric cultural resources throughout the state of Minnesota. In Clay County, this survey was designed to test 40 acre plots of land randomly selected from four ecological zones, river bottoms, beach ridges or strandlines, strandlines intersected by streams, and open prairie (Michlovic 1979:1). The 137 units surveyed were examined visually at 50 meter intervals. Shovel tests were also dug at 50 meter intervals in areas where ground surface visibility was poor. Of the 137 units examined, 14 contained prehistoric sites. However, a total of 44 sites were located as a result of the survey. These additional sites were located as a result of informant interviews and intuitive checking of the located sites. One was found in Hagen Township, 0-50 meters from the South Branch. It yielded flakage, a bone fragment, and a cord-wrapped dowel impressed body sherd. According to Michlovic (1979:15), the majority of these sites were found along the Red and Buffalo Rivers to the west and south of the project area. Material from a second site is located approximately $\frac{1}{2}$ mile from the South Branch and is in a private collection. The site was visited but no artifacts were collected. Three other sites were located during the course of the survey, the closest of which is 2 miles from the project area.

The number of 40 acre parcels in Clay County containing prehistoric sites will be reasonably accurately estimated as a result of the statewide survey. Furthermore, these estimates will be broken down on the basis of the 4 ecological zones mentioned above.

RECORDS CHECK

The state site records at the Office of the State Archaeologist and the State Historic Preservation Office were checked. In Clay County, 5 sites were on record, 4 of which were outside of the project area. The fifth is approximately $1\frac{1}{2}$ miles from the South Branch in Section 10, Township 142N, Range 45W. The site is Chilstrom Mound recorded by Lloyd Wilford in 1939, originally identified by Winchell (1911). According to Streiff (1972) there are no excavated sites in Clay County.

In Norman County, 10 sites were on file, none of which are located within two miles of either the South Branch or Felton Ditch. Winchell (1911) identified 7 sites in Norman County.

Again, none of these sites are near the project area. Streiff (1972) recorded two excavated sites in Norman County. The first was Slinger Mound (21 NR 1) in Section 23, Township 144N, Range 45W, and the second was Habben Moung (21 NR 2) in Section 22, Township 145N, Range 45W. Lloyd Wilford visited the sites in 1939 and 1945 excavating them in 1946.

Finally, the Federal Register (1978) was checked for sites listed on the National Register of Historic Places. As of February 7, 1978 there were no entries in Norman County and the Solomon Comstock Gillman Historic House in Moorhead was the only listing in Clay county. The Minnesota Historical Society listing (1979) of sites having state and local significance was also checked. In this listing, Clay County had no entries and the Faith Milling Company was the only entry in Norman County.

PERSONAL INTERVIEWS

An important part of the over-all process of obtaining background data for a project such as this is the personal interviews with professional archaeologists, project engineers, county historical society personnel, private collectors, and landowners. The literature search done for this project included interviews with persons belonging to each category.

Dr. Michael G. Michlovic is a professor of Anthropology at Moorhead State University and is the most active professional archaeologist working in the project area. Dr. Michlovic indicated that site density was relatively low along the South Branch and Felton Ditch as compared to other portions of Norman and Clay Counties (Red River Valley). His recent participations, however, in the statewide survey located 44 sites, 14 located within the 40 acre sample plots and the rest from intuitive checking and informant interviews. None of these sites, however, are in the immediate project area. Therefore, he increased the number of known sites in Clay County by nearly 900%. He also gave us all of the information that he had concerning site location, size, artifacts collected from each site, etc. and the names of other people who might be helpful in our efforts.

Jan E. Streiff, who had done the 1974 survey of the Twin Valley Flood Control Project for the Corps of Engineers, was contacted after the field examination for this project was completed. Her results, as well as our, were the same in that no cultural material was found during either survey.

Edward Lofstrom, who is in charge of the 1978 Statewide Survey, shared the results of the statewide survey for Clay County as well as provided us with locations and descriptions

of known recorded sites, and published and unpublished data pertaining to the project area.

Lawrence Woodbury, Houston Engineering, Inc. of Fargo, North Dakota, was very helpful in detailing the exact nature of the construction activities in terms of the construction specifications and the subsequent benefit in terms of water control. He also discussed with us the attitudes of landowners toward the project, information on the soils in Clay and Norman County, and gave us the names of other people we should contact.

Myrtle Rector, curator of the Norman County Historical Society in Ada, was kind enough to open the museum and show us the collections of prehistoric and historic materials. Several prehistoric artifacts are housed at the Museum including a copper projectile and stone maul from near Hadler; flint side and base notched projectile points and a triangular point found on the Balzum Farm along the Wild Rice River; flint side and base notched projectile points with no locational information available; a maul and milling stone found $2\frac{1}{2}$ miles west of Ada along the Marsh River, and a skinning knife found on the Neil Johnson farm on the Clay and Norman County line. In terms of historical artifacts, the museum housed several fine displays ranging from early settlers period to the 20th century.

Carol St. Clair, Director of the Clay County Historical Society in Moorhead, gave us the names of local collectors that should be contacted and indicated that the prehistoric artifactual material housed at the museum was on loan from Dr. Michael Michlovic.

David Fevig is affiliated with the Ulen Historical Society, Ulen, Minnesota. The museum housed several ground stone objects including mauls and hammerstones, knives, side notched projectile points and a corner notched projectile point. No locational information was available for any of the artifacts. Mr. Fevig was not aware of any local collectors in the Ulen area nor had he collected any cultural material himself.

Lawrence Nelson, Norman County Soil Conservation Service, supplied us with the Norman County Soil Survey Report as well as discussed with us the soil types and variation throughout the county.

Malvern Jacobson, Clay County Soil Conservation Service, supplied us with the completed soil survey maps for Clay County.

Paul Des Jardins is a local collector from Felton, Minnesota. His collection consisted of corner, base, and side notched projectile points, a tip of a knife, 2 grooved mauls and a hammerstone. He said that he has given much of his collection to friends and relatives because at one time he had around 40 projectile points and a dozen ground stone tools. Much of his collection came from Flowing Township, South of Felton, along the intermittent stream in the west half of Section 3. He also indicated that cultural material is more common in Hagen Township just east of our project boundary. The types of artifacts found there range from scrapers to projectile points to ground stone objects. He said that the best time to find artifacts on the surface in these areas is in the early spring.

Will Wright is a landowner along the southeast end of the Felton Ditch. He gave us permission to drive on his property for easier access. In all of his years farming he had never collected any artifacts nor was he aware of anyone in the area who had. He was aware of some people who had recovered several bison skulls from the Wild Rice River but couldn't tell us the names of the collectors or the location on the river. He didn't recall any artifacts recovered with the skulls. He gave us the names of other landowners in the area to contact.

Mr. Brendennuhl is another landowner along the Felton Ditch. He, too, has never collected any artifacts on his property nor was he aware of any collectors in the area. He did, however, mention Mr. Paul Des Jardins of Felton and said that he was somewhat of a local historian.

A. C. Heiras is a landowner in Hagen Township on the south end of the South Branch. He had never collected any cultural material on his property nor was he aware of anyone who had a private collection.

John Setervang and his father, Carl, are landowners on the northeast end of the South Branch. John said that he has walked most of the South Branch and has found virtually no cultural material, especially ceramics. He has also collected artifacts but he no longer had them and was not able to provide exact locations. He did have a grooved maul and a celt found along the Wild Rice, but again, no locational information was provided. Both John and Carl Setervang expressed an interest in "Indian artifacts" and have spent years looking with little or no success.

Other Landowners were contacted when permission was needed to drive on their property. They were always asked if they had

ever found cultural material on their land or were aware of anyone who had. Except for the above mentioned, none were of particular help to us.

SURVEY RESULTS AND RECOMMENDATIONS

RESULTS

As indicated above, a total of 65.5 linear miles was reconnoitered and 104 shovel tests were dug primarily in areas where the ground surface visibility was poor or the potential for site location based upon topography, hydrographic features, etc. was good.

No cultural material was found during the ground surface reconnaissance and no cultural material was found in any of the shovel tests.

RECOMMENDATIONS

Based upon the ground surface reconnaissance and the sub-surface shovel testing, there appears to be no significant historic or prehistoric cultural resources which would be directly or indirectly impacted by proposed construction activity for this project. However, the following recommendations should be considered:

1. Because no historic or prehistoric cultural resources were located as a result of this survey, we recommend that the proposed construction activities proceed as planned.
2. As stated in the Scope of Work, the fill for levee construction on the southeast end of Felton Ditch will be taken from downstream excavation activities. However, if it becomes necessary to utilize fill from areas not surveyed for this project or earlier projects, the area should be surveyed by a professional archaeologist in order to guarantee that no cultural resources will be adversely effected.
3. Because the survey was conducted so late in the field season, we did have some difficulty with light snow cover. Because of the snow fall in late October, areas that could have been visually examined with good surface visibility subsequently had to be shovel tested. Therefore, we recommend that whenever possible contracts be awarded as early in the field season as possible in order to alleviate the ominous threat of winter.

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1979 General Soil Association Maps. Drafts obtained from the Soil Conservation Service at Moorhead, Minnesota.

Upham, Warren

1909 "Geological History of the Red River Valley." In History of the Red River Valley, Vol. 1, pp. 15-31. Grand Forks: Herald Printing Co. and Chicago: C. F. Cooper and Co.

1969 Minnesota Geographic Names. St. Paul: Minnesota Historical Society,

Winchell, N. H.

1911 The Aborigines of Minnesota. St. Paul: Minnesota Historical Society.

Winship, George B.

1909 "Forty Years of Development of the Red River Valley." In History of the Red River Valley, Vol. 1, pp. 73-95. Grand Forks: Herald Printing Co. and Chicago: C. F. Cooper and Co.

APPENDIX I
Scope of Services

APPENDIX A

SCOPE OF WORK
WILD RICE RIVER - SOUTH BRANCH
AND FELTON DITCH, MINNESOTA1.00 General

1.01 The cultural resources survey reports serve several functions. The technical report is a planning tool which aids in the preservation and protection of our cultural heritage. It is also a comprehensive, scholarly document that not only fulfills federally mandated legal requirements, but also serves as a scientific reference for future professional studies. As such, the report's contents should be both descriptive and analytic in nature. The popular report provides the results of the survey in laymen's terms. It serves primarily as a means of educating the public about the cultural heritage of an area but also informs them of how the St. Paul District is fulfilling its obligations toward cultural resources.

1.02 The survey and reports represent partial fulfillment of the obligations of the St. Paul District toward cultural resources as required by the National Environmental Policy Act of 1969 (P.L. 91-190); National Historic Preservation Act of 1966 (P.L. 89-665); Protection and Enhancement of the Cultural Environment (EO 11593); Advisory Council's Procedures for the Protection of Historic and Cultural Properties (36 CFR 800); Preservation of Historic and Archaeological Data 1974 (P.L. 93-291); and Identification and Administration of Cultural Resources (33 CFR 305).

1.03 The cultural resources survey shall focus on the study area(s) as described in paragraph 4.01 of this Appendix A. The study shall consist of the following tasks: (1) a comprehensive review of existing literature and records; (2) an intensive field survey of the study area; (3) preparation of an artifact inventory; (4) an evaluation of cultural resources located within the direct-impact-zone; (5) an evaluation of the potential indirect impacts; and (6) the preparation of a detailed technical survey report and a general, popular report.

1.04 The objective of the Phase I cultural resources survey is to identify all the cultural resources which may be affected by the implementation of the proposed project and to recommend additional testing for those resources which may be significant.

1.05 The Contractor shall provide specialized skills and knowledge during the course of the study, to include expertise in the disciplines of archaeology, history, architectural history, and any other sciences as would be required. The Contractor shall also provide all materials and equipment necessary to expeditiously perform those services required of the study.

1.06 The Contractor shall designate, in writing, the name of the Principal Investigator, and the Principal Investigator shall sign the draft and final reports.

1.07 The extent and character of the work to be accomplished by the Contractor shall be subject to the general supervision, direction, control, and approval of the Contracting Officer.

2.00 Definitions

2.01 "Cultural resources" are defined to include any building, site, district, structure, object, data, or other material relating to the history, architecture, archaeology, or culture of an area.

2.02 "Phase I cultural resources survey" is defined as an intensive, on-the-ground survey and testing of an area sufficient to determine the number and extent of the resources present and their relationship to project features. A Phase I cultural resources survey will result in data adequate to assess the general nature of the sites present, a recommendation for additional testing of those resources which, in the professional opinion of the Principal Investigator, may provide important cultural and scientific information, and detailed time and cost estimates for Phase II testing.

2.03 "Phase II testing" is defined as the intensive testing of those sites which may provide important cultural and scientific information. Phase II testing will result in data adequate to determine the resources' eligibility for inclusion on the National Register of Historic Places, a plan for the satisfactory mitigation of eligible sites which will be directly or indirectly impacted, and detailed time and cost estimates for mitigation.

3.00 Project Description

3.01 The Wild Rice River - South Branch and Felton Ditch Project in northwestern Minnesota was authorized by Congress in the Flood Control Act of 13 August 1968 (P.L. 90-483). The project area is located in southern Norman and northern Clay Counties. The South Branch of the Wild Rice River drains an area of approximately 253 square miles, while Felton Ditch drains 122 square miles. Topography of the project area is varied. The western portion is flat and was formerly a part of Glacial Lake Agassiz. The eastern portion is made up of sandy ridge beach lines that separate the flat lake bottom from the drift prairie region.

3.02 The proposed project for the South Branch and Felton Ditch includes a number of different features. Debris removal will be accomplished along the lower 0.95 mile of Felton Ditch and along the lower 1.21 miles of the South Branch. In addition, debris will be removed between mile 15.55 and

mile 16.0 on the upper South Branch. Debris removal on the upper South Branch will also include removal of the remnants of Bridge No. 20 at approximately mile 16.1. Enlargement of both the South Branch and Felton channels will be undertaken: Felton Ditch between mile 0.95 and mile 17.2 and South Branch between mile 1.21 and mile 15.55. Enlargement will be either from both sides or from one side only, depending upon the reach involved. A total of 146 side ditch inlets will be constructed in the areas of channel enlargement. Between mile 17.2 and mile 20.0 levees will be constructed along both banks of Felton Ditch. Excavated material for the construction of these levees will be taken from the downstream reaches of channel excavation. A concrete drop structure will be installed at the juncture of the levees and channel enlargement to reduce erosion in this transition zone.

4.00 Study Area

4.01 The areas to be examined shall be within the indicated right-of-way as shown on drawing Nos. R24-N-11/18 through R24-N-11/28. The project plan is shown on drawing R24-N-11/16 and the general plan and index on drawing R24-N-11/17. Areas in which right-of-way is shown for one bank only shall be extended to include both banks when cultural resources have been located along the designated bank.

5.00 General Performance Specifications

5.01 Information and data contained in the literature search shall be obtained from, but not limited to, the following sources:

a. Published and unpublished reports such as books, journals, theses, dissertations, manuscripts, newspapers, surveyor's notes, and early atlases.

b. Site files maintained by the State Archaeologist's Office at Hamline University, the State Historical Preservation Office, the University of Minnesota, and local historical societies.

c. National Register of Historic Places, including current additions and deletions as published in the Federal Register.

d. Consultation with professionals familiar with the cultural resources of the area.

e. Preliminary contacts with amateur archaeologists and individuals concerned with local history in order to locate sites and to identify and define local interests and resources perceived to be locally significant.

5.02 The Contractor shall conduct an intensive on-the-ground survey of the study area commensurate with the level of a Phase I cultural resources survey as described in paragraph 2.02. Upon receipt of the draft report, the recommendations and cost estimates for further testing will be evaluated by the Contracting Officer. If it is felt to be to the advantage of the Government, the Contractor shall undertake Phase II testing as defined in Paragraph 2.03 of this scope of work. All Phase II testing to be completed under this contract is at the option of the Government, and is subject to the availability of funds. Cost for Phase II testing shall be negotiated once the extent of testing has been determined. The extent of Phase II testing shall be mutually agreed upon by the Contracting Officer and the Contractor and shall be outlined in a supplement to this scope of work. The Contractor shall begin further testing only after the award of the Phase II testing option has been made. The results of Phase II testing, if it is done, shall be presented in reports separate from the Phase I survey reports.

5.03 The survey shall include surface inspection in areas where surface visibility allows for adequate recovery of cultural materials and subsurface testing where surface visibility is limited. Subsurface investigation may include test pits, corings, or cut bank profiles where appropriate.

5.04 When sites are not wholly contained within the right-of-way limits, the Contractor shall survey an area outside the right-of-way limits large enough to include the entire site within the survey area. This shall be done in an effort to delineate site boundaries and to determine the degree to which the site will be impacted.

5.05 Should it become necessary in the performance of the work and services, the Contractor shall, at no cost to the Government, secure the rights of ingress and egress on properties not owned or controlled by the Government. The Contractor shall secure the consent of the owner, his representative, or agent prior to effecting entry on such property.

5.06 The Contractor shall keep standard field records which shall include, but are not limited to, field notebooks, site survey forms, field maps, and photographs.

5.07 All operations shall be conducted under the supervision of qualified professionals in the disciplines appropriate to the data that are to be recovered.

5.08 Techniques and methodologies used during the survey shall be representative of the current state of knowledge for their respective disciplines.

5.09 The recommended professional treatment of recovered materials is curation and storage of the artifacts at an institution that can properly insure their preservation and that will make them available for research and public view. If such materials are not in Federal ownership, the consent of the owner must be obtained in accordance with applicable law, concerning the disposition of the materials after completion of the report.

6.00 General Report Requirements

6.01 Upon completion of the field investigation and research, the Contractor shall prepare a technical report detailing the work done, the results, the recommendations for further testing, and the time and cost estimates for Phase II testing. In addition, the Contractor shall prepare a popular report of the survey results, written in laymen's terms, which will be made available to the public. While references may be made to specific sites, site locations should not be used. Normally, the length of this report will not exceed ten typewritten pages.

6.02 The technical report shall include, but is not limited to, the following sections:

a. Title page: The title page should provide the following information: the type of survey undertaken (reconnaissance, intensive) the cultural resources which were assessed (archaeological, historical, architectural); the project name and location (county and State); the date of the report; the Contractor's name; the contract number; the name of the author(s) and/or the Principal Investigator; the signature of the Principal Investigator; and the agency for which the report is being prepared.

b. Administrative Summary: The summary will be a synopsis of the report defining the project area and the level of the cultural resources investigation. It shall summarize the research objectives and problems, methods, numbers, and types of resources identified, the significant recommendations and any unusual or innovative findings or techniques developed during the course of the investigation. Because this information will serve both as an administrative summary and as a portion of that information required by the Department of the Interior for its annual report to Congress (pursuant to section 5.c. of the Reservoir Salvage Act as amended), the summary should be as detailed and succinct as possible. Normally the summary will not exceed one typewritten page.

c. Table of Contents.

d. Introduction: this section should include the purpose of the report; a description of the proposed project; the location of the proposed project including a map of the general area; and a project map (a list of U.S.G.S. Quadrangle maps which cover the project area should also be included); and the dates during which the field survey was conducted. The introduction shall also contain the name of the institution where recovered materials will be curated.

e. Environmental Setting: this section should contain a brief description of the environment of the study area, both present and past conditions, and it should be of a length commensurate with other sections of supporting type information.

f. Survey Methods: this section should give an explicit statement of survey methods and rationale. It should describe the areas which were surveyed (types of ground cover, degree of surface visibility, etc.) whether or not the survey resulted in the location of any cultural resources, the methods used to survey the area (pedestrian reconnaissance, subsurface test, etc.) the rationale for eliminating uninvestigated areas, the estimated size of the investigated sample and its relationship to the sample universe (e.g., 100 acres representing 15 percent of the project impact area), and the grid or transect interval used. The recommended grid or transect interval is 15 meters (50 feet); however, this may vary depending upon field conditions.

g. Summary of Regional Prehistory and History: this section should discuss the regional cultural developments in their spatial and chronological position.

h. Literature Search and Personal Interviews: this section should discuss the results of the literature search and any personal interviews that were conducted during the course of the survey. The literature search should contain a brief summary and evaluation of previous archaeological and historical studies of the region, including the date, extent, and adequacy of the past work as it reflects on the interpretation of what might be found in the project area.

i. Survey Results: this section should describe the archaeological, architectural, or historical resources encountered, including the size of the site; type of site (i.e., historic dwelling, prehistoric village, mound group, etc.); the cultural component(s) of the site (if discernable); and the general nature of the site as it existed at the time of the survey. An inventory of cultural material recovered from sites may be included in this section or added to the site survey forms. Accession numbers for collected cultural material should be included as a part of the inventory. Inventoried sites shall include a site number. Official site designations assigned by an appropriate State agency are preferred. However, if temporary site numbers will be used in either the draft or final reports, they shall be substantially different from the official site designations so as to avoid confusion or duplication of site numbers.

j. Recommendations: this section should discuss the direct and indirect impacts that the proposed project will have on cultural resources. It should contain the recommendations of the Principal Investigator for the Phase II testing of those resources which, in his opinion, may provide important cultural and scientific information. The Contractor shall also provide time and cost estimates for completion of Phase II testing as defined in paragraph 2.03. The recommendations shall also include a discussion of any sites, structures, or materials illustrating distinctive cultural processes which are potentially suitable for interpretive development for the public.

k. References: (American Anthropological Association format)

l. Appendix: this section should contain the scope of work and the resumes of the Principal Investigator and Field Director.

m. The above items do not necessarily have to be discrete sections; however, they should be readily discernable to the reader.

7.00 Format Specifications

7.01 Test materials will be typed (single-spaced) on good quality bond paper, 8.5 inches by 11.0 inches, with a 1.5 inch binding margin on the left, 1 inch margins on the top and right, and a 1.5 inch margin at the bottom.

7.02 Information will be presented in textual, tabular, and graphic forms, whichever is most appropriate, effective, or advantageous to communicate the necessary information.

7.03 All figures must be readily reproducible by standard xerographic equipment.

8.00 Submittals

8.01 The contractor shall complete all work and services under this contract within the following time limitations:

a. Six copies of the draft report shall be submitted 30 calendar days following award of the contract, or no later than 15 October 1979.

b. The Government shall have 45 calendar days following receipt of the draft report for review and comments.

c. An original and 10 copies of the final report shall be submitted 15 calendar days following receipt of the Government's review and comments.

d. If the Government review exceeds 45 calendar days, the period of service of the contract shall be extended on a day-by-day basis equal to any additional time taken by the Government for review.

8.02 The Contractor shall furnish separately, as part of contract correspondence, one copy of the drawings, as described in paragraph 4.01, which show the boundaries of all cultural resources located during the survey, and their relationship to project features. These drawings shall delimit those areas included in the survey as described in paragraph 6.02 f. One copy of the site survey forms shall be submitted separately as volume 2 of the report.

8.03 The Contractor shall submit the photographic negatives for all black and white photographs which appear in the final report.

8.04 The Contracting Officer shall provide to the Contractor 2 copies of those construction drawings listed in paragraph 4.01. The Contracting Officer shall also provide a copy of An Archaeological Survey of the Twin Valley Flood Control Project by Jan E. Streiff and other documentation prepared under that contract. If requested, the Contracting Officer will provide a letter of introduction signed by the St. Paul District Engineer explaining the objectives of the work and requesting cooperation from private landowners.

8.05 Neither the Contractor nor his representative shall release any sketch, photograph, report, or other material of any nature obtained or prepared under the contract without specific written approval of the Contracting Officer prior to the acceptance of the final report by the Government.

9.00 Method of Payment

9.01 Payment for Phase I & II work will be made in lump sum upon approval of the respective final reports by the Contracting Officer. Payment for Phase I may be made before or during completion of Phase II (optional).

APPENDIX II

Plates

Plate 1: South Branch of the Wild Rice River-Facing East
Into Section 6, Township 142N, Range 45W



Plate 2: South Branch of the Wild Rice River-Looking West
Into Section 1, Township 142N, Range 46W



Plate 3: South Branch of the Wild Rice River-Facing East
Into Section 36, Township 143N, Range 46W



Plate 4: South Branch of the Wild Rice River-Facing West
Into Section 1, Township 142N, Range 46W



Plate 5: Felton Ditch, Facing Southeast Into Section 6,
Township 141N, Range 46W



APPENDIX III

Vitae

VITA

PERSONAL DATA

EDUCATION

Post Graduate Work (Anthropology/Archaeology), Ohio State University and the University of Minnesota. 1974, 1975.
M.A. in Anthropology/Archaeology from Ohio State University, 1974.
B.A. in Sociology from Mankao State University, 1973.
A.A. (General) from Rochester Community College. 1971.

CURRENT POSITION

Prehistoric Archaeologist and President, Impact Services Inc.
P. O. Box 3224 Mankato, Minnesota 56001

FIELD EXPERIENCE

Principal Investigator: Cultural Resource Survey of the
Wastewater Treatment Facilities at Morton, Renville County,
Minnesota. Winter, 1980.

Principal Investigator: Cultural Resource Survey of the New Ulm Airport Expansion Project, Brown County, Minnesota. Winter, 1980.

Principal Investigator: The Cultural Resource Investigation of the Wild Rice River - South Branch and Felton Ditch Flood Control Project Area, Clay and Norman Counties, Minnesota. For the St. Paul District, U. S. Army Corps of Engineers. Fall, 1979.

Principal Investigator: An Archaeological Investigation of the Proposed Lagoon Site, Dam Site Recreation Area, Coralville Lake, Iowa River, Iowa. With Richard A. Strachan. For the Rock Island District, U. S. Army Corps of Engineers. Summer, 1979.

Principal Investigator: Archaeological Site Survey and Testing
of the Harlan County Lake, Republican River, Nebraska. For the
Kansas City District, U. S. Army Corps of Engineers. Summer,
1979.

Principal Investigator: The Archaeological Reconnaissance Survey of the Storm Water Diversion and Treatment System Project, Waseca County, Minnesota. Summer, 1979.

Principal Investigator: Site Survey at Lakeview City Park, Waseca County, Minnesota. Summer, 1979.

Site Survey at Blue Earth City Park, Faribault County, Minnesota. Principal Investigator: Richard A. Strachan. Spring, 1979.

Site Survey of the Proposed Wastewater Treatment Facility in Zumbro Falls, Wabasha County, Minnesota. Principal Investigator: Richard A. Strachan. Spring, 1979.

Principal Investigator: Cultural Resource Inventory of the Historic and Prehistoric Cultural Resources of the Chippewa National Forest. With Nancy L. Woolworth. For the United States Forest Service. Milwaukee, Wisconsin. Fall, 1979.

Site Supervisor: Site Survey of the Stanton and Preferred Corridors, North and South Dakota. Principal Investigator: Richard A. Strachan. Summer and Fall, 1978.

Principal Investigator: Site Survey of the Bureau of Reclamation Irrigation Project Near Pollock and Herreid, Campbell County, South Dakota. With Nancy L. Woolworth. Summer, 1978.

Field Supervisor: Site Survey at Garvin Park, Lyons County, Minnesota. Principal Investigator: Richard A. Strachan. Fall, 1977.

Principal Investigator: Excavation of the Eleanor Site (21NL30), Nicollet County, Minnesota. With Richard A. Strachan. Summer, 1977.

Principal Investigator: Archaeological Site Survey of the Eleanor Site (21NL30), Nicollet County, Minnesota. With Richard A. Strachan. Spring, 1977.

Principal Investigator: Archaeological Survey of Woods Lake Park, Faribault County, Minnesota. Fall, 1976.

Principal Investigator: Site Survey of Swan Lake Perimeter, Nicollet County, Minnesota. With Richard A. Strachan. Fall, 1976.

Field Supervisor: Archaeological Excavation of the Eleanor Site (21NL30), Nicollet County, Minnesota. Principal Investigator: Richard A. Strachan. Summer, 1976.

Principal Investigator: Aerial Site Survey of Lake Ashtabula, Barnes County, North Dakota. With Richard A. Strachan. For the St. Paul District, U. S. Army Corps of Engineers. Summer, 1976.

Salvage Excavation of the Silvernale Site (Mississippian Village), Goodhue County, Minnesota. Principal Investigator: Christina Harrison. Spring and Fall, 1976.

Field Supervisor: Site Survey of the Swan Lake Perimeter, Nicollet County, Minnesota. Principal Investigator: Richard A. Strachan. Fall, 1975.

Field Supervisor: Site Survey of the Rochester Flood Control Area, Olmsted County, Minnesota. Principal Investigator: Richard A. Strachan. Fall 1975.

Crew Member: Excavation of the Mankato Site (Woodland Tool Factory), Blue Earth County, Minnesota. Principal Investigator: Richard A. Strachan. Summer, 1974.

Crew Member: Excavation of the Bauer Site (Woodland Camp), Le Sueur County, Minnesota. Principal Investigator: Richard A. Strachan. Summer and Fall, 1972.

LABORATORY EXPERIENCE

Analysis of Material from the Site Survey and Testing of the Harlan County Lake, Republican River, Nebraska. Winter 1980.

Analysis of Material from the Archaeological Investigation at the Proposed Lagoon Site, Coralville Lake, Iowa. Winter, 1979.

Analysis of Material from the Site Survey of Blue Earth City Park, Faribault County, Minnesota. Spring, 1979.

Analysis of Material from the Archaeological Reconnaissance Near Zumbro Falls, Wabasha County, Minnesota. Spring, 1979.

Analysis of Material from the Archaeological Survey of the Stanton and Preferred Corridors, North and South Dakota. Fall, 1978.

Analysis of Material from the Archaeological Survey of the Bureau of Reclamation Irrigation Project, Campbell County, South Dakota. Summer, 1978.

Analysis of Results from the Cultural Resource Inventory of the Chippewa National Forest. Summer, 1978.

Analysis of Material from the Site Survey of Garvin Park, Lyons County, Minnesota. Fall, 1977.

Analysis of Material from the Archaeological Excavation of the Eleanor Site (21NL30), Nicollet County, Minnesota. Fall, 1977.

Analysis of Material from the Site Survey of Woods Lake Park, Faribault County, Minnesota. Fall, 1976.

Analysis of Material from the Site Survey of the Swan Lake Perimeter, Nicollet County, Minnesota. Fall, 1976.

Analysis of Material from the Archaeological Excavations of the Eleanor Site (21NL30), Nicollet County, Minnesota. Summer, 1976.

Analysis and Report Preparation of the Lake Ashtabula Aerial Infrared Survey, Barnes County, North Dakota. Summer, 1976.

Analysis of Material from the Rochester Flood Control Area, Olmsted County, Minnesota. Fall, 1975.

Analysis and Report Preparation of the Mankato Flood Control Area Project, Blue Earth County, Minnesota. Summer, 1975.

Laboratory Technician: Division of Archaeology, Ohio Historical Society. Summer, 1974.

Laboratory Supervisor: Museum of Anthropology, Mankato State University. Fall, 1972.

PUBLICATIONS AND MANUSCRIPTS

The Cultural Resource Survey of the Proposed Wastewater Treatment Facilities at Morton, Renville County, Minnesota. Winter, 1980.

Archaeological Site Survey and Testing of the Harlan County Lake, Republican River, Nebraska. For the Kansas City District, U.S. Army Corps of Engineers. (In Progress).

The Cultural Resources Survey of the New Ulm Airport Expansion Project, Brown County, Minnesota. Winter, 1979.

The Cultural Resource Investigation of the Wild Rice River - South Branch and Felton Ditch Flood Control Project Area, Clay and Norman Counties, Minnesota. With Michael A. Eigen. For the St. Paul District, U. S. Army Corps of Engineers. Winter, 1979-1980.

An Archaeological Investigation of the Proposed Lagoon Site, Dam Site Recreation Area, Coralville Lake, Iowa. With Richard A. Strachan. For the Rock Island District, U. S. Army Corps of Engineers. With Richard A. Strachan. Winter, 1979.

The Archaeological Reconnaissance Survey of the Storm Water Diversion and Treatment System Project, Waseca County, Minnesota. Summer, 1979.

An Archaeological and Historical Survey and Report of Findings on Proposed Bureau of Reclamation Project near Pollock and Herreid, South Dakota. With Nancy L. Woolworth. For the Department of the Interior, Bureau of Reclamation.

Cultural Resource Inventory of the Historic and Prehistoric Resources of the Chippewa National Forest. With Nancy L. Woolworth. For the United States Forest Service.

Aerial Infrared Archaeological Survey of the Lake Ashtabula, North Dakota. With Richard A. Strachan. For the St. Paul District, U. S. Army Corps of Engineers. Fall, 1976.

Archaeological Survey of Mankato Flood Control Area. With Richard A. Strachan. For the St. Paul District, U. S. Army Corps of Engineers. Fall, 1975.

Problems in Teaching Kinship in Anthropology. Paper Presented at the Annual Meetings of the Minnesota Academy of Science. May, 1974.

TEACHING EXPERIENCE

Instructor (Sessional): Department of Sociology, Mankato State University. Winter, 1980.

Instructor (Sessional): Department of Sociology, Mankato State University. Winter and Spring, 1978.

Instructor (Sessional): Department of Sociology/ Anthropology, Hamline University. Summer, 1977.

Instructor (Sessional): Department of Sociology, Mankato State University. Spring, 1977.

Instructor (Sessional): Department of Sociology, Mankato State University. Winter, 1976.

Teaching Assistant: Department of Anthropology, Ohio State University. Winter, 1974.

Teaching Assistant: Department of Anthropology, Ohio State University. Spring, 1974.

AREAS OF INTEREST

Eastern North American Prehistory, Upper Great Lakes Prehistory
Paleoecology, Conservation Archaeology, Physical Archaeology, and
Museology.

PROFESSIONAL MEMBERSHIPS

Society for American Archaeology
American Anthropological Association
Council for Minnesota Archaeology
Minnesota Academy of Science
Blue Earth County Historical Society

REFERENCES

Christy A.H. Caine, State Archaeologist
Assistant Professor of Anthropology
Hamline University
St. Paul, Minnesota

William R. DeMaree, Professor and Chairman of Sociology
Mankao State University
Mankato, Minnesota

Martha Potter Otto
Division of Archaeology
Ohio Historical Society
Columbus, Ohio

Richard A. Strachan, Associate Professor of Anthropology
Director, Museum of Anthropology
Mankato State University
Mankato, Minnesota

VITA**PERSONAL DATA**

Name: Michael Anthony Eigen Birthday: May 20, 1946
Marital Status: Married Telephone: 507-388-4543
(Home) 507-387-8167
Address: 722 Blue Earth Street
Mankato, Minnesota 56001

EDUCATION

M. S. in Continuing Studies-Specialty in Historical Archaeology, Mankato State University. Anticipated Completion Date: April 1, 1980.

B. S. in Mathematics with Minors in History and Anthropology, Mankato State University. 1972.

CURRENT POSITION

Historical Archaeologist. Impact Services, Incorporated. P. O. Box 3224, North Mankato, Minnesota 56001.

FIELD EXPERIENCE

Cultural Resource Survey of the Wastewater Treatment Facilities at Morton, Renville County, Minnesota. Principal Investigator: Kathleen A. Roetzel. Winter, 1980.

Site Survey of the New Ulm Airport Expansion Project, Brown County, Minnesota. Principal Investigator: Kathleen A. Roetzel. Winter, 1980.

Field Supervisor: The Cultural Resource Investigation of the Wild Rice River - South Branch and Felton Ditch Flood Control Project Area, Clay and Norman Counties, Minnesota. For the St. Paul District, U. S. Army Corps of Engineers. Principal Investigator: Kathleen A. Roetzel. Fall, 1979.

Field Supervisor: Archaeological Site Survey and Testing of the Harlan County Lake, Republican River, Nebraska. For the Kansas City District, U. S. Army Corps of Engineers. Principal Investigator: Kathleen A. Roetzel. Summer and Fall 1979.

Field Supervisor: An Archaeological Investigation of the Proposed Lagoon Site, Dam Site Recreation Area, Coralville Lake, Iowa. For the Rock Island District, U. S. Army Corps of Engineers. Principal Investigators: Kathleen A. Roetzel and Richard A. Strachan. Summer, 1979.

Site Survey at Lakeview City Park, Waseca County, Minnesota. Principal Investigator: Kathleen A. Roetzel. Spring 1979.

Archaeological Reconnaissance of Kansas Lake Park, Watonwan County, Minnesota. Principal Investigator: Richard A. Strachan. Spring, 1979.

Site Survey at Blue Earth City Park, Faribault County, Minnesota. Principal Investigator: Richard A. Strachan. Spring, 1979.

Site Survey of the Proposed Wastewater Treatment Facility in Zumbro Falls, Wabasha County, Minnesota. Principal Investigator: Richard A. Strachan. Spring, 1979.

Field Supervisor: Site Survey of the Stanton and Preferred Corridors, North and South Dakota. Principal Investigator: Richard A. Strachan. Summer and Fall 1978.

Excavation of the Price Site (21BE25), Blue Earth County, Minnesota. Principal Investigator: Michael Scullin. Spring-Fall 1975.

Test Excavations and Site Survey, Blue Earth and Faribault Counties, Minnesota. Principal Investigators: Guy Gibbon and Michael Scullin. Spring 1975.

Test Excavations of Oneota Sites, Faribault County, Minnesota. Principal Investigator: Guy Gibbon. Fall 1974.

Excavation of the Price Site (21BE25), Blue Earth County, Minnesota. Principal Investigator: Michael Scullin. Summer 1974.

Site Survey of the Blue Earth River, Blue Earth County, Minnesota. Principal Investigator: Michael Scullin. Spring 1974.

Excavation of the Nelson Site (21BE24), Blue Earth County, Minnesota. Principal Investigators: Berger Anderson and Michael Scullin. Summer 1973.

MUSEUM AND LABORATORY EXPERIENCE

Analysis of Material Recovered from the Site Survey and Testing of the Harlan County Lake, Republican River, Nebraska. In Progress.

Analysis of Material Recovered from the Archaeological Reconnaissance Survey of Kansas Lake Park, Watonwan County, Minnesota. Spring 1979.

Analysis of Material Recovered from the Site Survey of the Blue Earth City Park, Faribault County, Minnesota. Spring 1979.

Analysis of Material from the Archaeological Reconnaissance Survey near Zumbro Falls, Wabasha County, Minnesota. Spring 1979.

Analysis of Material from the Site Survey of the Stanton and Preferred Corridors, North and South Dakota. Fall 1978.

Curator: Blue Earth County Museum: Duties Included Classifying, and Organizing Prehistoric and Historic Materials, Planning and Preparing Displays and Exhibits, Designing and Constructing Display Cases, and Preserving and Restoring Artifacts. March 1977 to August 1978.

Prehistoric Agricultural Exhibit. Blue Earth County Museum. With Michael Scullin, John Kjos, and Julie Cole. Fall 1976.

Hidatsa Project-Reconstruction of Hidatsa Earthlodge and Gardens. Exhibit for "Farmfest '76," the Official Bicentennial Agricultural Exposition. Lake Crystal, Minnesota. With Michael Scullin, John Kjos, and Julie Cole. January to September 1976.

Minnesota Archaeological Interpretive Exhibit. Blue Earth County Museum. Fall 1975-Spring 1976.

Minnesota Archaeological Interpretive Exhibit. Blue Earth County Fair. With Michael Scullin. Summer 1975.

Hidatsa Cultural Exhibit. Mankato State University Library. Winter-Summer 1975.

Laboratory Assistant, Analysis of the Price Site Material. Mankato State University. Summer-Fall 1975.

Laboratory Assistant, Analysis of the Nelson Site Material. Mankato State University. Fall 1973.

PAPERS AND MANUSCRIPTS

The Cultural Resource Investigation of the Wild Rice River-South Branch and Felton Ditch Flood Control Project Area, Clay and Norman Counties, Minnesota. With Kathleen A. Roetzel. For the St. Paul District, U. S. Army Corps of Engineers. Winter 1980.

A Cultural Resource Survey of Proposed Construction Areas Within Lakeview Park Near Janesville, Waseca County, Minnesota. Summer 1979.

The Archaeological Reconnaissance Survey of Kansas Lake Park, Watonwan County, Minnesota. Spring, 1979.

"Reconstruction of a Hidatsa Earth Lodge." With Michael Scullin, John Kjos, and Julie Cole. In Environmental Design: Native Wit. Huldah Curl, Editor. University of Minnesota. 1977.

Reconstruction of a Hidatsa Earth Lodge and Gardens. With Michael Scullin, John Kjos, and Julie Cole. A Paper Presented at the Joint Plains-Midwest Anthropological Conference. Minneapolis, Minnesota. October 1976.

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GRANTS AND AWARDS

Merit Award. A Project Entitled "Reconstruction of a Hidatsa Earth Lodge." Submitted to "Environmental Design: Native Wit." Minneapolis, Minnesota. With Michael Scullin, John Kjos, and Julie Cole. Spring 1977.

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AREAS OF INTEREST

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WORK IN PROGRESS

The Hidatsa Project: An Example of Interpretation and Reconstruction in Historical Archaeology. A paper to be submitted as partial fulfillment of the requirements for a Master of Science Degree in Continuing Studies, Mankato State University.

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